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Correlates of suicide risk among adolescents.

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CORRELATES OF SUICIDE RISK AMONG ADOLESCENTS

A Dissertation Presented

by

Theodore H. Stronach

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School of Education

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AMONG ADOLESCENTS

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Dedication

To Dianne

We both walked paths before we met
Of pain and tears and sad regret
And then we took another chance
The night in town we began to dance

I could not believe what I had found
How full my life with you around!
A woman smart and strong and agile
And sometimes soft and weak and fragile
With moods much like New England weather
(It's hardly dull when we're together!)
A lively smile, a rascal touch
Awakens me to, oh, so much
And sometimes with a hearty nudge
You shake me up and make me budge
And then I drop the load I carry
And like two kids we play so merry

So, with summer's heat and dedication
We made our nuptual celebration
A life made fertile by our love
And many blessings from above
I feel so rich, so full of life
Especially now, you are my wife.

We both walked paths before we met
Of pain and tears and sad regret
And then we took another chance
The night in town we began to dance
And now we share a path together
Through rocky hill and flowered heather
With children and with times alone
To distant lands and then to home.

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While I take great personal pride in presenting this dissertation, I am also reminded of the many people without whose kind helpfulness this work would not have been possible. My first thanks go to my chairperson, Allen Ivey, so generously available to guide me through this project while maintaining his very demanding professional life. I especially appreciate his sensitivity and wisdom through the difficult phases of the project. Both in word and deed, he taught me a great deal which I will be using throughout my career in Counseling Psychology. I was also inspired by the professionalism of my two committee members, Ena Nuttall and Sally Freeman, who held me accountable to high standards of scholarship and sensitivity to my research subjects.

I must also acknowledge the extensive support I received from my community where I collected the research data. We are particularly blessed with the inspiring leadership of our Superintendent of Schools, Vahan Khachadoorian. In his solid support throughout the project, he courageously acknowledged the responsibility of schools to address the issue of teen suicide. I am also grateful for the almost daily collaboration with Suzanne Genest, the Director of Pupil Personnel Services, and her staff, especially in working out the nitty-gritty

details of the study. I also appreciate the helpfulness of the High School Principal, Paul Brunelle, the members of the School Board, and the parents who allowed their children to participate in this study. I must also give a special thanks to the Millis High School students I met through my classroom presentation and the collection of the data. I was truly impressed by their serious, responsible interest in this problem.

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ABSTRACT

CORRELATES OF SUICIDE RISK AMONG ADOLESCENTS

FEBRUARY, 1988

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The Suicide Probability Scale consists of 36 multiple choice questions designed to assess suicide risk among adolescents, as well as adults. But it is a relatively threatening clinical instrument with items that speak directly to issues of suicide. This is a problem for normal populations, such as high school students. The purpose of this study is to determine if there are other, less threatening ways to screen for teen suicide risk. This is essential to a suicide prevention effort in which high risk teenagers are targetted for more extensive evaluations and interventions.

The subjects of the study were 5Ø White 9th-11th grade public high school students (age 14-17) from a small town 25 miles outside of Boston. The dependent variable was their scores on the Suicide Probability Scale. The independent variables were their scores on the

ten Family Environment Scale subscales, the Crespi Inventory of Adolescent Well-Being, and the Nowicki-Strickland Locus of Control Scale For Children and two demographic variables (age, sex). A multiple regression analysis of the data was conducted using the computerized Statistical Package for the Social Sciences (SPSS).

Considered separately, 8 of the 14 independent variables corelated significantly with the dependent variable. A step-wise regression with all 14 independent variables produced a regression equation including Crespi Scale scores, FES Active-Recreational Orientation, and sex. This equation correlated very highly (r=.902) with scores on the Suicide Probability Scale. The major conclusion is that a simple 20 question inventory of general adolescent well-being (the Crespi Scale), 9 questions about social and recreational activities, and sex can be used to predict adolescent suicide risk to a high degree. This is a simpler and less threatening procedure than the administration of the 36-item Suicide Probability Scale.

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CHAPTER I

INTRODUCTION

Purpose of the Dissertation

The purpose of this dissertation is to examine adolescent suicidal risk as measured by the Suicide Probability Scale. Can scores on this scale be related to other important test variables through multiple regression analysis?

The test variables in question are overall adjustment as measured by the Crespi Scale of Adolescent Well-Being, locus of control as measured by the Nowicki-Strickland Locus of Control Scale For Children, and family environment and acculturation variables measured by the Moos Family Environment Scale. The research hypotheses were tested by administering these instruments to a non-clinical sample of Millis (Massachusetts) High School students, ages 14-17.

The question of prediction of suicide is a difficult one. The major existing scale for suicide prediction, the Suicide Probability Scale (SPS), is a 36-item self-report scale appropriate for adolescents and adults. Subjects rate the frequency of certain types of experience on a 4-point Likert scale. The clinical population of the subject is considered along with his/her item responses to produce a Probability Score indicating the statistical likelihood that the subject belongs in the population of lethal suicide attemptors. As a screening

instrument, however, the SPS is somewhat threatening and not likely to be used in schools regularly. Can a substitute battery of instrumentation be developed which will correlate sufficiently with the SPS and yet also screen high school students for suicide problems?

The Importance of the Problem

The importance of examining adolescent suicidal behavior will be evident in the dramatic mortality statistics presented below. Before examining them, however, we must realize that, as striking as they are, they underestimate the problem. McGinnis (1987) reports that medical examiners frequently misrepresent a suicidal death as an accident or homicide to soften the emotional blow to family members or as an expression of their own biases. McGinnis' opinion is supported by a survey of 200 medical examiners, more than half of whom stated that the reported number of suicides was possibly less than half of the actual number of suicides (Jobes, Berman, & Josselsen, 1986).

Mortality statistics. The official suicide rates and numbers of suicides for 15-19 year olds in the United States in 1982 are presented in Table 1. By 1980 suicide had officially become the third leading cause of death in this age group, after accidents and homicides (U. S. Bureau of the Census, 1984). Due to the under-reporting of suicides, however, it should really be considered the second leading cause of adolescent deaths.

Table 2 shows the dramatic increase in the teen suicide rate from 1960 to 1982, especially among White males. During this same period

Table 1

Suicide Rates (per 100,000) and Numbers of Official Suicides Among 15-19 Year Olds in the United States (1982)

	Whites			Blacks and Other Races			Total
	Total	Male	Female	Total	Male	Female	
Number	1573	1297	276	157	125	32	1730
Rate	9.6	15.5	3.4	4.6	7.2	1.9	8.7

(U.S. Department of Health and Human Services, 1986)

Table 2

Suicide Rates Among 15-19 Year Olds In the United States, 1960-1982

Group	1960	1964	1968	1972	1976	1980	1982
Males							
White	5.9	6.6	8.3	11.0	11.8	15.0	15.5
Black	2.9	3.6	3.8	8.1	7.0	5.6	6.2
Females							
White	1.6	1.7	2.2	2.7	3.3	3.3	3.4
Black	1.1	1.9	1.8	3.0	2.5	1.6	1.5

(McGinnis, 1987)

the suicide rates of middle-aged and older adults declined. McGinnis (1987) contrasts the rising death rates among the young due to both

suicide and homicide with the decline in other major causes of death. From 1950 to 1982 the death rates due to accidents, cancer, and heart disease declined (7%, 31%, and 67% respectively), while the homicide rate more than doubled and the suicide rate more than tripled. It seems that our society has made impressive gains in reducing the lethality of accidents and disease among the young, but that we have lost ground to the more consciously violent forms of death represented by homicides and suicides.

While this dissertation focuses on the situation in the United States, it is important to recognize that the problem is truly international. Holinger (1978) estimates that the American adolescent suicide rate is roughly at the median among those of European countries which offer comparable statistics. In his listing Hungary and Czechoslovakia topped the rankings while Norway and the Netherlands had the lowest rates. Other societies show a similar increase in the adolescent suicide rate since the early 1950's. Solomon and Murphy (1984) report that the suicide rate of 15-19 year olds in Alberta, Canada increased from 1.6 (per 100,000) in 1951 to 20.0 in 1976. Diekstra and Moritz (1987) note a similar dramatic rise in the adolescent suicide rate from 1950 to 1980 in the Netherlands. They estimate that adolescent suicides currently comprise about one-fifth of all suicides in the Western world, compared to 11-12% of the suicides of 1950.

While statistics on adolescent suicide attempts are even more difficult to determine than statatistics on completed suicides, a

recent study (Smith & Crawford, 1986) estimates that from 1.5 to 2.5 million adolescent Americans made suicide attempts in 1984, 90% of which have received no professional attention.

Governmental recognition of the problem. The problem of adolescent suicidal behavior has received governmental recognition at the federal level. In 1980 the United States Public Health Service set a specific objective to reduce the suicide rate among the young by 1990 (U.S. Department of Health and Human Services, 1980). President Reagan and the Congress stressed the national significance of the problem in proclaiming June, 1986 "Youth Suicide Prevention Month". This symbolic act was followed by legislation, the Youth Suicide Prevention Act (H.R. 4650), which designates start-up funds of $1,000,000 for fiscal 1987 for discretionary grants to local educational agencies and private non-profit organizations. The purpose of these grants is "to establish model programs that increase the awareness of the problem among families, school personnel, and community leaders; train school personnel and community leaders in school-wide suicide prevention strategies; and coordinate these prevention efforts with other community and government programs" (Committee on Education and Labor, 1986, p. 2). This legislation was passed by the United States House of Representatives, but government documents indicate no further action since it was referred to the Senate Labor Committee on July 15, 1986.

The importance of determining causes of adolescent suicidal behavior. The Youth Suicide Prevention Act describes the important, but complex problem of determining the causes of adolescent suicidal

behavior. Research, especially experimental studies, is still needed to clarify the identifiable and measurable variables related to the risk of suicidal behavior. On the individual level, the identification of the teen-ager at risk for suicidal behavior is essential for the most productive deployment of mental health services. Both research and clinical practice demonstrate the critical importance of the strong, caring involvement of family, friends, and professional helpers. It is the lack of such involvement which typically occurs in the suicidal act of a lonely, alienated, and desperate individual.

In a more general sense, the identification of risk factors is the theoretical foundation for any program of "mental hygiene". If, for example, external locus of control can be shown to be related to high suicide risk, it suggests the importance of parents, teachers, and others with responsibility for the young to inculcate a sense of mastery over one's life. In this sense "suicide prevention" negatively expresses something whose value becomes even more clear in its positive form. This is the crucial importance of helping people to grow in their sense of the satisfying possibilities that life has to offer. It seems axiomatic that such people will not decide to end their lives.

Hasn't enough already been done about teen suicide? A great deal has indeed been written on the subject, especially within the last ten years. Don't we already have enough on the subject to ground our suicide prevention efforts?

The answer is "probably not", since there is no epidemiological evidence that our efforts have reversed the mounting problem. In fact,

the alarming rise in adolescent suicidal behavior we have discussed has occurred in a period characterized by much professional attention to the problem. Beginning in the late 1950's we see the development of the American Association of Suicidology, a quantam leap in the number of books and articles devoted to the subject, and the proliferation of agencies centers such as the Samaritans, Rescue, Inc., and the Los Angeles Suicide Prevention Center.

The failure of the suicide prevention movement to decrease the suicide rates in this country is the subject of a study by Kiev (1971). Among 158 suicide attempters during the period 1967-69, he found that only 4% (N=7) had called a suicide prevention center prior to their attempt. One can argue that Kiev has chosen a biased sample which does not include those who contacted an agency and did not make a suicide attempt as a result of the center's intervention. In any event, Kiev asserts the ineffectiveness of such programs to deal with the typical impulsivity of the suicidal act, which precludes the foresight of making a telephone call requesting help. He claims that it is the more high-risk, socially disconnected people who are least likely to reach out to a stranger. He concludes that "we must develop new methods for widening the treatment net and delivering care to high risk groups which are not now being reached" (pp. 6-7). I don't believe we can do this without being more clear about the factors that relate to suicidal behavior.

Salient Predictors of Adolescent Suicidal Behavior

The literature as a whole shows that adolescent suicidal behavior is a complex phenomenon. Simplistic answers abound, which seem to be more an expression of theoretical prejudices, than an attempt to utilize the full range of empirically based research conclusions. These contributions do not yet, and may never, fit into any neat theory.

While there is no simple answer to the question, why teen-agers try to kill themselves, certain dominant factors emerge from a reading of the literature. One is low degree of well-being, with suicidal adolescents indicating a striking number of upsetting problems in their lives, even compared with other disturbed, but non-suicidal teen-agers. A second factor is weak acculturation as reflected by a low degree of involvement in intellectual, cultural, or religious activities and the lack of a strong sense of guiding values. A third set of variables is the bind of experiencing pressure to achieve, yet without the cohesive family organization and sanction of individual initiative necessary for achievement. The outcome of this bind is perhaps the fourth variable, a sense of powerlessness to initiate action towards satisfying goals in the belief that external factors are controlling one's life. While these factors certainly do not exhaustively represent all the correlates to adolescent suicidal behavior, it will be the purpose of this dissertation to establish that separately and especially together, they are predictive of adolescent suicide risk.

The Choice of Psychometric Instruments

This study is based on the assumption, to be examined more closely in Chapter 3, that the Suicide Probability Scale (SPS) is a valid measure of suicide risk among adolescents. The SPS was standardized using a normal, non-clinical sample (N=562) and two criterion groups of psychiatric inpatients (N=260) and individuals who had made serious suicide attempts (N=336). Raw scores are converted to Probability (ofsuicide risk) Scores by a weighting of individual items incorporating the presumptive risk of the population to which the subject belongs (general population, psychiatric outpatients, psychiatric inpatients and outpatients in crisis). The test authors report odd-even internal consistency at .93 and ten day test-retest reliability of .94. Construct validity is supported by the factor analysis that generated the four subscales (suicide ideation, hopelessness, negative self-evaluation, hostility) and a .70 correlation with the Farberow and Devries Suicide Threat Scale. Criterion validity is supported by its accuracy of classification of suicide attempters ($p<.001$), especially among the high (98.2%) and intermediate (83.0%) presumptive risk groups.

The SPS was chosen to measure the dependent variable because it predicts suicide in the individual, is relatively simple to group administer, and is appropriate for a high school population. It was chosen over other commonly used methods which fail to meet these criteria. Demographic factors are useful in determining suicide risk

more for groups than individuals. The evaluation of clinical signs and symptoms would be too cumbersome and subjective a procedure. Many psychometric instruments, such as The Suicidal Intent Scale (Beck, Schuyler, & Herman, 1974), The Suicidal Death Prediction Scales (Lettieri, 1974), and The Risk-Rescue Rating (Weisman & Worden, 1974), measure suicide risk after a suicide attempt and are therefore not appropriate for a normal population. Other psychometric instruments, such as The Index of Potential Suicide (Zung, 1974), the Rorschach, and the TAT, rely too extensively on individual administration and interpretation. The Suicidal Behaviors Questionnaire (Smith & Crawford, 1986) is an interesting new inventory for adolescents, although, unlike the SPS, it does not produce an overall score reflective of suicide risk.

The Crespi Inventory of Adolescent Well-Being (Crespi) was chosen to measure one of the independent variables, overall adolescent adjustment. The 20 items of the inventory cover behavior, thought patterns, and feeling states pertinent to the important dimensions of adolescent life. This includes home and school, peer relationships, athletics, and involvements with the legal, medical, and mental health systems. The Crespi Scale is quickly and easily administered to large groups, is relatively non-threatening, and produces a single score of adolescent well-being.

The Nowicki-Strickland Locus of Control Scale For Children (CNSIE) was chosen because of its value in measuring this variable for adolescents. It is superior to a similar scale developed by Bialer

(1961) which had a split-half reliability of .49 (Schaffer, Strickland, & Uhl, 1969), compared to split-half reliabilities for the CNSIE that ranged from .63 to .81 for different age groups (Nowicki & Strickland, 1973). The Bialer scale is also vulnerable to a "response set", given that almost half the items are consecutively keyed in one direction. Battle and Rotter's Children's Picture Test of Internal-External Control (1963) is difficult to administer to large groups and provides incomplete information on reliability. The Intellectual Achievement Responsibility Questionnaire (Crandall, Katkovsky, & Crandall, 1965) is specifically constructed for the academic setting, while the CNSIE, like the Crespi, covers a wide gamut of adolescent experience. Like the Crespi Scale it is also easily administered to groups, is relatively non-threatening, and produces an overall score of the construct.

The Family Environment Scale (FES) was chosen to measure perception of family environment largely due to the extensive body of research that has developed around this instrument. This is useful in comparing our subjects to the subjects of other studies. Also, unlike the Family Adaptability & Cohesion Evaluation Scales (FACES III) which measures only two family variables, the FES consists of ten separate subscales which measure different aspects of the relationship, personal growth, and system maintenance dimensions of the family. Like our other instruments, the FES is also easy to group administer, is relatively non-threatening, and can be quickly scored by hand.

Research Premise and Hypotheses

The general premise to be examined in this research is that scores on the SPS can be predicted from a cluster of individual and family variables. A multiple regression analysis will examine the relationship of the SPS to the Crespi Inventory of Adolescent Well-Being, the Nowicki-Strickland Locus of Control Scale For Children, the Family Environment Scale, and the age and sex of the subjects. In testing the ability of these factors to predict the dependent variable we will attempt to reject the following research hypotheses, which are presented in null form.

1. There is no difference in suicidal risk among adolescents who vary on scores of adolescent adjustment as measured by the Crespi Inventory of Adolescent Well-Being.
2. A constellation of cultural factors including low intellectual-cultural orientation and low moral-religious emphasis does not relate to suicidal risk among adolescents.
3. A constellation of family factors including high achievement orientation, low family cohesion, low family organization, and low family emphasis on independence does not relate to suicidal risk among adolescents.
4. There is no difference in suicidal risk among adolescents who vary on measures of locus of control.

Important Distinctions Among Types of Adolescent Suicidal Behavior

Before proceeding to the literature review we must be clear that our study involves the prediction of one type of adolescent suicidal behavior, namely, lethal suicide attempts. But "suicidal behavior" is also used to describe a wide variety of dangerous behavior that does not, at least immediately, result in a self-inflicted death. It would be careless to assume that the same predictive factors are involved in all forms of adolescent self-destructive behavior. In fact, several studies reveal important distinctions.

Dorpat, Jackson, and Ripley (1965) compared 121 suicide attempters of all ages with 114 completed suicides. They discovered a significant difference ($p<.05$) between the two groups in the percentage of each that came from "broken homes", defined as "a home in which one or both parents were missing for a period of over four years prior to the subject's 18th birthday" (pp.213-214). Fifty per cent of the completed group vs. 63.9% of the attempted group were characterized by this phenomenon. Divorce of parents was the most common cause of the "broken home" among the attempted group, while death of a parent was the most common cause among the "completed group ($p<.05$). Roughly equal percentages of both groups lost one parent (22% - attempted, 27% - completed), although there is a significant difference in the percentage which lost both parents (42.7% - attempted, 22.8% - completed, $p<.05$). There was no significant difference in the age at which the parental loss occurred.

In their study of 313 Kansas high school students Smith and Crawford (1986) found that 10.5% had made one or more suicide attempts, an additional 14.7% had developed a suicidal plan, and an additional 37.4% reported some degree of suicidal ideation. The authors found that the non-suicidal students resembled the Ideators, while the Attempters and Planners were similar. While the degree of depression successively increases from the Non-suicidal to the Ideator to the Planner to the Attempter group, the authors question whether the Attempters are really the most at risk. Like those adults who complete suicides, the Planners were most self-absorbed with thoughts and feelings, such as anticipations of dying violently, feeling disappointed in others, and feeling pessimistic about the future. The Attempters, on the other hand talked of troubling interpersonal interactions, e.g. a bad relationship with a mother and experiences of rape and other kinds of sexual abuse.

There does appear then to be differences between those teen-agers who attempt suicide and those who complete a suicide. Let us keep this in mind as we proceed to our literature review.

CHAPTER II

LITERATURE REVIEW

Introduction

A reading of the extensive literature on adolescent suicidal behavior reveals a confusing variety of theories and research data. In one article alone (Richman, 1971) 14 family variables are implicated. This greatly complicates the formulation of generalizations. Nonetheless, four sets of variables emerge whose significance as predictors of adolescent suicide risk will be tested by this research. In so doing we make no claim that they are the only predictors, merely that they are some worthy of consideration.

Before defining the research variables in the light of the relevant literature, we shall offer further statistics on the phenomenon of adolescent suicidal behavior. Then we shall discuss some of the major predictive factors that emerge from the literature before isolating the four that are of major interest to this study.

Some General Considerations

As noted in Chapter One, the adolescent suicide rate has increased dramatically over the past thirty years, especially compared with the rates of other age groups. What factors can explain this phenomenon?

Diekstra (1985) suggests that the increase may be related to increased alcohol consumption among the young in his discovery of a .79 correlation between the order of Western countries based on percentage change in alcohol consumption and percentage change of the overall suicide rate. Another study (Salk, Lipsitt, Sturner, Reilly, & Levat, 1985) relates the increasing adolescent suicide rate from 1950 to 1980 with improved perinatal care during this period. The authors claim that medical advances have created a situation in which high risk babies are less likely to die and more likely to survive to adolescence. Vulnerabilities related to the perinatal risk factors produce a susceptibility to suicide during the teen-age years.

The authors support their hypothesis by comparing the birth records of 52 adolescent suicide victims in Rhode Island from 1975-83 with two control groups matched for sex, race, and hospital of birth. The authors found a significantly higher incidence of 46 maternal, prenatal, birth, and neonatal risk factors among the experimental group as compared to a combination of the control groups ($p<.01$). The three most prominant risk factors among the adolescent suicide victims were respiratory distress for more than one hour at birth, no antenatal care before 20 weeks, and chronic disease of the mother during pregnancy.

Holinger and Offer (1982) provide impressive demographic statistics in support of a different explanation. They discovered a positive correlation between the adolescent suicide rates of 15-19 year olds in the United States from 1933 to 1975 and both the absolute number and the percentage of this group in the general population. On

the other hand, Holinger, Offer, and Ostrov (1987) report a significant negative correlation between population density and suicide rate for the 35-44 year old ($r=-.52$, $p<.001$) and 55-64 year old ($r=-.32$, $p<.05$) cohorts. Holinger and Offer (1984) report that these population factors also correlate positively and significantly among 15-24 year olds with homicide and nonmotor vehicle accidents, but negatively with motor vehicle accident rates.

From this data the authors conclude that large concentrations of adolescents in the population caused by the post-World War II "Baby Boom" produced a problematic competition for needed psychological and material resources and that those who fail the competition become vulnerable to suicidal, and other forms of life-threatening, behavior. These research findings predict a decline in the adolescent suicide rate through the 1980's as the number of adolescents in America declines. This drop has already begun as recent statistics show a decline in the suicide rates of 15-24 year olds, from an all-time high of 13.6 in 1977 to 11.9 in 1983.

Comparisons with other age groups. As we discuss the striking increase in the adolescent suicide rate, we must also point out that the absolute rate has always been lower for teen-agers than adults, even though the gap has narrowed somewhat. Among pre-adolescents, suicide is highly uncommon, generally the result of severely psychotic behavior. With the onset of adolescence at about age 13 the rate increases dramatically and the behavior no longer appears to be psychotic. Holinger and Luke (1984) have shown that the suicide rate

increases from one age-cohort to the next through adolescence and into the early 20's where the rate begins to level off.

An important question arises: What is there in adolescent development that increases the likelihood of suicidal behavior? In this regard Diekstra and Moritz (1987) discuss the failure of important adolescent issues related to the development of a positive sense of identity, a wholesome sense of relationships, and a hopeful outlook towards the future. Holinger and Luke (1984) report on theories related to the physiological changes of puberty, socialization factors, and the advent of formal operations and different conceptions of death. While concluding that multiple factors are probably involved, the authors also state that epidemiological data more strongly supports the implication of cognitive developmental change.

Statistics on adolescent attempted suicide. While accurate data on completed suicides is difficult to obtain, it is even harder to get statistics on attempted suicides. Smith and Crawford (1986) found, for example, that an enormous number of adolescent suicide attempts never receive professional attention. In their study of 313 "normal" Kansas high school students an amazing 10.5% (N = 33) reported one or more suicide attempts. Only 12.1% received medical treatment for their attempts, suggesting that approximately 7/8 of adolescent suicide attempts will be missed using medical statistics. If this sample is representative, the authors conclude that 18,300 15-19 year olds in Kansas have made suicide attempts. This figure contrasts with the 25 documented suicides of 15-19 year olds in Kansas during 1983.

Racial variables. Adolescent suicide is generally a more serious problem among Whites than other races. The United States 1982 suicide rate (per 100,000) for White 15-19 year olds was 9.6, compared to 4.6 for non-Whites of the same age group. Hendin (1987) found, however, that in New York City, as well as in other urban centers, the suicide rate for Blacks, age 15-30, of both sexes was consistently higher than that of Whites of the same age. Frederick (1984) also reports a strikingly high suicide rate from 1977-1979 among Native Americans, age 15-24: 44.7 vs. 12.4 for all races of that age group.

Sex differences. There are very striking sex differences in adolescent suicidal behavior. In 1982 the suicide rate for White males 15-19 years old was 15.5, compared to 3.4 for White females of the same age group. Non-White males in this age group are also much more likely than females to kill themselves (7.2 vs. 1.9).

While adolescent males are approximately four times more likely to kill themselves, numerous studies (Tuckman & Connon, 1962; Morrison & Collier, 1969; White, 1974; Marks & Haller, 1977; Jacobziner, 1960; Rosenberg & Latimer, 1966; Garfinkel, Froese, & Hood, 1982; Teicher & Jacobs, 1966) show that adolescent females are between three and six times more likely to make non-lethal suicidal attempts. Studies show that the sex differences specifically relate to adolescent completed and attempted suicides, rather than to other confounding variables. Garfinkel, Froese, and Hood (1982), for example, found a similarity between boys and girls in the number of preadolescent (6-13.5 years) suicide attempts. Mattson, Seese, and Hawkins (1969) found a roughly

equal proportion of male and female adolescents presenting to a psychiatric clinic for other types of emotional problems. Marks and Haller (1977) report an adolescent female/male ratio of 2/1 on "suicidal thoughts" and no significant sex difference when "suicidal threats" was measured.

Consistent with the higher suicide rate of adolescent males is the finding that males tend to use more dangerous means in their suicide attempts --- hanging, shooting, and jumping from high places. Females, on the other hand, are more likely to overdose on drugs or cut their wrists, behavior less likely to result in death. Combining statistics for the two sexes, however, we note the overall preponderance of drug overdoses. A review of numerous empiricial studies (Mattson, Seese, & Hawkins, 1969; Tishler, McKenry, & Morgan, 1981; Otto, 1972; Garfinkel, Froese, & Hood, 1982; Rohn, Sarles, Kenny, Reynolds, & Heald, 1977) shows that approximately 80% of all adolescent suicide attempts are drug overdoses.

Situational variables. The literature (Tishler, McKenry, & Morgan, 1981; Mattson, Seese, & Hawkins, 1969; Garfinkel, Froese, & Hood, 1982; Otto, 1972; Phillips, 1984) indicates a modest bulge of adolescent suicide attempts in the wintertime. There is more striking evidence (Otto, 1972; Garfinkel, Froese, & Hood, 1982; Tuckman & Connon, 1962; Jacobziner, 1965) that most adolescent suicide attempts occur in the home after school hours. Jacobziner (1965) found that 52% of the attempts in his study took place with one or both parents present. Phillips' (1984) sophisticated study shows that, unlike

adults, adolescents do not commit suicide to a significantly greater degree around holidays or specific days of the week. He did find, however, that adolescent, more than adult, suicides tend to cluster together temporally, suggesting the particular susceptibility of adolescents to the suicidality of their peers.

Sibling position. Oldest and youngest children may be somewhat over-represented among the group of adolescent suicide attempters. Lester (1967) took Toolan's (1962) data on adolescent suicide attempters and compared the incidence of sibling position with that of the general population of the United States. He found statistical significance ($p<.001$) that first borns were over-represented in the sample, as were later borns (fourth born and later). Most of these "later borns" would be "last borns" or youngest children. Rosenberg and Latimer (1966), however, have a rather large sample of 209 male and 163 female suicide attempters under age 19 in which the percentage of oldest females (32%) does not appear to differ significantly from that of the general population (31.7%, using Lester's figures). The percentage of oldest males in the sample (50%), however, does appear to be significantly different from that in the general population.

Intelligence and academic factors. The literature (Rosenberg & Latimer, 1966; Jacobziner, 1965; White, 1974; Shafter, 1974; Stone, 1973; Crumley, 1979) draws inconsistent conclusions about the intelligence of suicidal adolescents. There is virtual unanimity, however, that the group as a whole does not perform up to its academic potential and has extensive school problems. Seventy-five percent of

the sample of Rohn, Sarles, Kenny, Reynolds, and Heald (1977) had exceptionally poor school records. Nineteen per cent had failed one or more grades, 35% were drop-outs or chronic truants, and 35% were listed as discipline problems. Stanley and Barter (1975) found that those teenagers who made only one suicide attempt did significantly ($p<.05$) better in school than those who made multiple attempts.

Precipitants. Conflict with parents emerges as the most frequent precipitant of an adolescent suicide attempt (Tuckman & Connon, 1962; Amir, 1973), followed by problems with school and heterosexual relationships. In the sample of Mattson, Seese, and Hawkins (1969) 40% of the attempts were preceded by conflict with parental figures. This percentage, however, does not differ from that of children of the same age referred to the same clinic for non-suicidal, emotionally disturbed behavior. For the suicidal group other precipitants were loss of a heterosexual love relationship (20%), school problems (14%), sexual problems (14%), and pregnancy (10%). The latter were less frequently reported in the non-suicidal group which also featured a higher percentage of physical illness (24%).

Otto's (1972) extensive Swedish study suggests significant gender differences in the precipitants of adolescent suicide attempts. He reports (p. 59) that a female suicide attempt is significantly ($p<.01$) more likely to be precipitated by love conflicts or family problems, while a male suicide attempt is significantly ($p<.001$) more likely to result from mental illness.

Other studies suggest the importance of anniversaries of important events. Shafter (1974) studied the 30 suicides of children under the age of 15 in England and Wales during 1962-68 and found that seven died within two weeks of their birth date ($p<.025$). Morrison and Collier (1969) report on their sample of 34 suicidal adolescents that 76% had experienced a recent significant loss or anniversary of losses e.g. deaths, illnesses, hospitalizations, marital separations, or household moves. These studies suggest that reminders of important losses can also be precipitants for a suicidal event.

Predictors of Adolescent Suicidal Behavior

Psychiatric diagnoses. Many studies show correlations between adolescent suicidal behavior and particular psychiatric diagnoses, including psychosis (Balser & Masterson, 1959; Stone, 1973; Glaser, 1981), personality disorders (Otto, 1972; Crumley, 1972), substance abuse (Crumley, 1979; McKenry, Tishler, & Kelley, 1983), and neurological problems (Corder, Shorr, & Corder, 1974; Rohn, Sarles, Kenny, Reynolds, & Heald, 1977). Depression is, however, the most frequently considered diagnosis, to the extent that many clinicians assume ipso facto that a suicidal teen-ager must be depressed.

Fawcett, Schefter, Clark, Hedeker, Gibbons, and Coryell (1987) report on studies that show the lifetime incidence of suicide among depressed patients is 15%. These patients have an annual suicide rate 3.5 to 4.5 times higher than that of other psychiatric diagnostic groups and 22 to 36 times higher than the general population. Let us

now consider more specifically the correlation between adolescent suicidality and depression.

Crumley's (1979) study of 40 adolescent suicide attempters showed the most common diagnosis to be some form of depression (80%) according to DSM-III categorizations. Tishler, McKenry, and Morgan (1981) found in a study of 108 adolescent suicide attempters that a majority presented vegetative signs of depression. Kaplan and Pokorny (1976) discovered a high correlation ($p<.001$) between the occurrence of self-derogatory statements indicative of low self-esteem, a major feature of depression, and the consequent development of suicidal ideation in a sample of 4694 junior high school students. Otto (1972) points out that depression may not be apparent in the suicidal teen-ager, as the decision to attempt suicide may be accompanied by a euphoric sense of relief that one has finally found an escape from overwhelming problems.

These studies show that suicidal adolescents carry a variety of psychiatric diagnoses and that no one diagnosis, even depression, is uniquely predictive of adolescent suicidal behavior. Mattson, Seese, and Hawkins (1969), for example, compared 75 suicidal children and adolescents with a control group of non-suicidal children and adolescents and found no significant difference in the constellation of primary diagnoses of the two groups. Friedrich, Reams, and Jacobs (1982) conducted a study which distinguished adolescent depression from adolescent suicidality in that the former correlated more with current life stress, whereas the latter correlated more with certain chronic features of the family environment.

The frustrating search for a "diagnosis" for suicidal adolescents suggests the extent of the individual differences involved. In this light, more fruitful explorations might be conducted into more particular psychological variables. This was indeed the path that the early analysts of the twentieth century took in their attempt to understand suicidal behavior.

Early psychological explorations. In meetings of the Vienna Psychoanalytical Society in April, 1910, Sigmund Freud and his colleagues explored potential psychological causes of adolescent suicide. This was the first concerted attempt of the group to come to a psychoanalytical understanding of self-destructive behavior. Friedman (1967) notes the revolutionary thrust of these discussions, given the prevailing social belief that suicide was caused by immediate environmental and/or physiological factors.

David Oppenheim began the symposium by criticizing the popular view that the harshness of the Austrian school system was responsible for adolescent suicides. While he and others conceded that failure at school examinations could precipitate suicidal behavior, conference participants stressed the importance of looking beyond immediate causes to the psychological development of the student through childhood. In this regard much attention was given to the pathological management of sexual impulses due to severe inhibitions of masturbation.

Each participant also made distinctive contributions reflective of special theoretical interests. Wilhelm Stekel proposed that the suicidal act was a form of self-punishment for aggressively violent

thoughts about significant others. Isidor Sadjer offered that the suicidal act indicated the abandonment of all hope of receiving the love the adolescent requires. Alfred Adler hypothesized that suicide derived from the source of all psychopathology: the mismanagement of one's sense of weakness and inferiority. Freud concluded by stating that the symposium had failed to explain how the powerful life-instinct was overcome in the suicidal act and suggested further explorations into the phenomena of mourning and melancholia. To a large extent, subsequent psychological theories on suicide are a development of the seminal ideas of this landmark meeting of great minds.

Alfred Adler. In 1914 Adler (1956) followed Freud's directive in writing that "the melancholic perspective" features the belief that "life resembles a difficult and enormous hazard, the preponderant majority of men are hostile, and the world consists of uncomfortable obstacles" (p. 319). In the melancholic, according to Adler, normal feelings of inferiority are pathologically crystallized into a chronic low self-esteem. This results in an excessive dependency on others and the avoidance of challenges and opportunities for personal growth. He/she forms unstable, hostile-dependent relationships with an excessive blaming of others, occasional outbursts of rage, and the kind of complaining that makes life miserable for others. There is a general sense of weakness with the belief that one is unprepared to cope with vague disasters assumed to be imminent.

Sigmund Freud. Freud followed his own directive in his classic "Mourning and Melancholia" (1957) in 1915. Therein he stated that both

phenomena feature a painful dejection, cessation of interest in the outside world, loss of the capacity to love, and an inhibition of activity, resulting from a loss. One turns away from a world which has become unbearable and attaches to internalized representations of the lost object. In healthy mourning this is a transitional phase and one gradually releases the representations, begins to accept the world without the lost object, and makes new attachments. In pathological melancholia, this does not happen, perhaps because the original loss is unclear. One sadistically attacks the internalized lost object while giving the outward appearance of a masochistic self-critical attitude. In suicide one is therefore "killing" the lost object with which one has become symbiotically involved.

In "Beyond the Pleasure Principle" written in 1920, Freud (1957a) offers another psychodynamic explanation of suicide. In this work he postulates the primordial struggle between the life-instinct and the death-instinct of the individual. This "two-instinct theory" is developed further in "The Ego and The Id" (1957b), written in 1923. There he argues that the normal forms of these instincts are love and hatred in dynamic tension throughout the life-cycle. As such, the death-instinct can be useful, as in the constructive expression of aggression. It becomes problematic, however, when the death-instinct becomes detached from the life-instinct and entrenches itself in the superego, where it violently rages against the ego. One then becomes suicidal, as the aggressiveness of the death instinct is directed towards the self.

Loss: further investigations. In a classic study Dorpat, Jackson, and Ripley, (1965) examined 121 consecutive adult patients admitted to Kings County (Washington) Hospital due to suicide attempts and the 114 completed suicides in that county over a one year period. The authors found that 50% of the completed and 63.9% of the attempted suicide groups came from "broken homes", defined as a home lacking one or both parents for a period of over four years prior to the subject's 18th birthday. This is a significant difference ($p<.05$) between the two groups. Divorce of parents was the most common cause of the broken home among the attempted group, whereas death of a parent was the most common cause for the completed group. This difference was also significant ($p<.05$). Roughly equal proportions of each group had lost one parent (attempted: 22%, completed: 27%), while there was a marked difference in the proportion which had lost both parents (attempted: 42.7%, completed: 22.8%), another significant difference ($p<.05$). There was no statistical difference in frequency of parental loss at different age levels.

Jacobziner's (1960) study of 299 suicide attempts by self-poisoning under the age of 20 supports the hypothesis of the lethal effect of the early death of a parent. He found a much larger percentage of subjects with deceased fathers, 8% vs. 1% for a group of accidental self-poisoners of the same age group. A later study by the same author (Jacobziner, 1965) showed an even higher percentage (12%) among the experimental group.

Heillig (1983) studied the families of six suicidal adolescents from a multi-generational perspective and concluded that they all had long histories of inadequacy in "mastering loss". In desperate attempts to prevent separation, these families developed a pseudo-intimacy of frightened dependency to reduce intrafamilial distance. The family closeness stifled individual growth and limited flexible adaptability to environmental change. The suicidal adolescent was often the family member who challenged the family closeness by asserting his/her individuality. This act of rebellion would result in the ultimatum: abandon your strivings for independence if you want to maintain your membership with us!

Jerry Jacobs and Joseph D. Teicher developed a body of research which concludes that suicidal adolescents are characterized not by one, even highly traumatic parental loss. These teens have rather suffered multiple losses within a family atmosphere of instability. Jacobs and Teicher conducted a controlled study (1967) in which they compared 50 adolescent suicide attempters with 32 non-suicidal adolescents, matched for age, race, sex, and net family income. They found that 72% of the experimental group and 53% of the control group came from broken homes. A more striking difference was that 58% of the experimental group parents remarried after the initial loss, compared to only 25% of the control group parents. Furthermore, those control parents that did remarry did so earlier in the child's life and remained married to their second spouse. Experimental parents either remarried later in the child's life or earlier with subsequent additional marital

separations and remarriages. The experimental group is therefore distinguished by a more chronic atmosphere of family instability, especially at the time of the symptom-bearer's entry into adolescence.

Stanley and Barter (1970) offer evidence on the importance of the timing of the parental loss. They compared 38 hospitalized suicidal adolescents with a control group matched for sex and age, admitted to the same psychiatric unit for other kinds of emotional problems. Both groups were high in parental loss (experimental N=17, control N=16). The groups differed, however, in the age of the patient at the time of the loss. In the experimental group 16 out of 17 of the losses occurred before the age of 12, compared to 9 out of 16 for the control group ($p=.026$, Fisher Exact Probability Test). No significant differences, however, were found regarding the type of parental loss. Threats of divorce or separation, however, were more common among the parents of the suicidal group (experimental group: 26%, control group: 8%, $p<.05$).

Studies also support the hypothesis that living in a stable home with two parents differentiates those adolescent suicide attempters who make further attempts from those who do not. Stanley and Barter (1970) report that repeat suicide attempters were less likely to be living with parents after the hospitalization than those adolescents who attempted suicide before, but not after, the hospitalization (33% vs. 64%, $p<.05$). Barter, Swaback, and Todd (1968) followed 45 adolescent suicide attempters 4 to 44 months after the attempt. Fifty eight per cent of those who made subsequent attempts were not living with their

families ($p<.01$), living either alone, in a psychiatric hospital, or in a foster home. Sixteen per cent of those who did not make further attempts were not living at home, a significant difference ($p<.01$). There was also a significant difference in the percentage of parent loss in the two groups: 63% among those who made subsequent suicide attempts compared to 38% among those who did not ($p<.05$).

Aggression: further investigations. Other studies have explored further the suspicion of the early analysts that suicidal behavior represents a psychopathological way of managing aggression. In analyzing the adolescent suicide rates of various countries, for example, McAnarney (1979) notes that countries which do not allow adequate outlets for aggression (Denmark, Sweden, Japan) are also high in their adolescent suicide rates. This explains why two countries as apparently similar as Sweden and Norway have such different suicide rates. McAnarney states that Norwegian culture offers much healthier outlets for aggression than does Sweden.

While Freud understood suicidal behavior intrapsychically as aggression pathologically directed towards the self, others report that the aggression arises interpersonally in the significant relationships of the suicidal individual. Tabachnick (1961), for example, describes the suicidal person as masochistically dependent on others. Anger can not be expressed directly (to do so would threaten the relationship) and is re-routed to self-destructive behavior. The counter-dependent significant other complements the masochistic suicidal behavior with an

expression of their own sadistic hostility, especially when they realize that their dedication to the other has produced so little.

Rosenbaum and Richman (1970) also report observations of the homicidal wishes of family members. They describe family interviews in which all join in a hostile, destructive blaming of the patient who does not express anger or attempt to defend him/herself. These families often display an alarming consensus that the patient was a burden and that the family would be better off without him/her. One mother told her son to pick a higher bridge the next time he jumped. A wife offered to buy her suicidal husband a gun. A husband told his wife to kill herself if she couldn't manage their daughter after she requested his help with a discipline problem.

Suicidal family members seem to be aware of these "death wishes" directed towards them. To the question "Did you ever feel others would be better off if you were dead or away?" 19 out of 35 suicidal inpatients replied in the unambiguous affirmative, while not one of 15 non-suicidal inpatients replied affirmatively.

Jourard (1969) also believes that suicidal behavior reflects the homicidal wishes of significant others. He proposes "that people destroy themselves in response to an invitation originating from others that he stop living. And that people live in response to the experience of chronic invitations to continue living in some way or in any possible way. . . The invitation is extended by others, that is, it

originates in someone's consciousness, sometimes as a conscious wish, sometimes not so openly, but rather as an indifference to the continued existence of the person in question" (pp. 132-33).

Sabbath (1969) also perceives adolescent suicidal behavior in the context of parental homicidal wishes. He suggests, however, that these wishes may represent more than aggressive hostility. He refers to the suicidal adolescent as "the expendable child" who serves an important function in the family culture, vicariously fulfilling the needs of parents through, e.g., promiscuity, homicidal aggression, incest, or drug abuse. "All these children", he writes, "serve a specific need for the specific psychopathology of each parent, and help to maintain the precarious equilibrium within the family structure" (p. 282).

Sabbath's analysis recalls Durkheim's (1951) description of altruistic suicide, one of the three forms of self-destructive behavior he discovered in his cross-cultural analysis of suicide rates. According to Durkheim, altruistic suicide occurs in strong cultures that prescribe suicidal sacrifices in behalf of higher social values. Examples are cultures in which the old or infirm, the wives of dead husbands, the followers of a dead chief, or warriors in battle go willingly to their death. In these societies individual life is relatively unimportant. The suicide may even express joy in the highly ritualized sacrifice of their own life for a higher good with which they can identify. Iga (1981) explains the high adolescent suicide rate in Japan, for example, as at least partially due to certain qualities of the prevailing religious traditions in the culture.

Literature Review of Research Hypotheses

Well-Being. It may seem trivial to report that suicidal adolescents are particularly deficient in a sense of well-being. Various attempts to define and measure this concept, however, have broadened our understanding of the predictive factors involved in adolescent suicidal behavior.

"Well-being" originally referred to the ideal of good mental health, the general goal of psychotherapy by which it was to be evaluated. Eysenck (1952) postulated three considerations: the return to work, no further or very slight complaints of the presenting problem, and a successful social adjustment. Jahoda (1958) stressed that good mental health was an individual matter which varied over time, place, culture, and expectations of the social group. She lists the following considerations (p.23):

1. Attitudes of the individual toward his own self
2. The individual's style and degree of growth, development, or self-actualization
3. A central synthesizing psychological function: "integration"
4. Degree of independence from social influences: "autonomy"
5. The adequacy of an individual's perception of reality
6. Environmental mastery

Jahoda goes on to explain these concepts. The first is a secure sense of identity with a generally positive, but also realistic, perspective of oneself. The second refers to participation in a forward moving process by which the individual develops his/her

potential, especially beyond the satisfaction of basic survival needs. The third is the coherent relatedness of all processes and attributes of the personality, including the balance of psychic forces, a unifying outlook on life, and resistance to stress. The fourth is the capacity to make and follow through on conscious decisions about one's involvement with the environment. The fifth is perception of the world free of distortions from one's own needs, but with an accurate sensitivity to others. The last combines the capacity to form relationships, to work productively, to recreate with pleasure, and to problem-solve challenges presented by the environment.

Bradburn (1969), on the other hand, presents an extensive body of research that leads him to the conclusion that psychological well-being or happiness is determined by the differential between levels of positive and negative affect. In a sense his ideas are similar to traditional theories that define happiness as the predominance of pleasure over pain. His distinctive contribution, however, lies in the view that positive and negative affects are independent of each other and are correlated with different variables. Positive affect relates to involvement with the environment, while negative affect relates to affective discomfort and problems in relationships and work activity. His data shows high correlations within, and low correlations between, the two sets of variables, supporting his hypothesis.

More recently Crespi (1985) has defined well-being as "a multi-faceted concept reflecting several aspects of adolescent adjustment including but not necessarily limited to self-esteem, school

adjustment, familial ratings, peer relationships, health, athletics, behavioral controls, etc., as evaluated by specific instrumentation (p. 9)". One such psychometric instrument is his own Inventory of Adolescent Well-Being (Crespi) whose items were developed through extensive consultations with mental health professionals and adolescent input. In a study using the Crespi Scale (Crespi, 1985) a Chi-square factor analysis (pp. 97-100) revealed that at least five factors consituted the variable measured by the scale.

Well-being does indeed appear to be a rather global, multi-faceted measure of adjustment. It is clearly lacking in suicidal adolescents who report a striking number of upsetting problems in their lives. Topol and Reznikoff (1982) compared suicidal adolescents with both a psychiatric non-suicidal and a non-psychiatric control group. Of the three groups the suicidal teen-agers indicated the most problems. They did not differ from the non-suicidal psychiatric group in number of family problems, although they did differ significantly in the number of problems labeled "serious". The suicidal group differed from the control group significantly in having fewer members with at least one confidant ($p<.01$). The suicidal group differed significantly ($p<.05$) from both other groups in perceiving their families as most distant from their ideal of what a family should be.

Smith and Crawford (1986) found that the suicide attempters in their adolescent sample indicated more chaotic home environments, greater conflicts with parents, a striking incidence of rape among the females, and the highest percentage of unpleasant change in their

lives. They also had the highest scores on the Beck Depression Inventory, were the most pessimistic, experienced the most number of major changes in themselves, and had the highest involvement in psychotherapy. Kaplan and Pokorny (1976) found that low self-esteem was a very striking problem in a sample of junior high school students who later developed suicidal ideation. Corder, Shorr, and Corder (1974) found that a group of suicidal adolescents were distinguished from a matched control group by their poor impulse control ($p<.005$), high activity level ($p<.005$), absence of adult identification ($p<.01$), and active conflict with parents ($p<.025$).

Given the negative cognitive set of suicidal adolescents, one might well question the accuracy of these gloomy reports. Are their families really so heavily burdened by problems? Other research validates their pessimism. Garfinkel, Froese, and Hood (1982) found more economic stress, medical problems, psychiatric and drug abuse problems, and less parental involvement in the homes of suicidal adolescents. Friedman, Corn, Hurt, Fibel, Schulik, and Swisky (1984) found that suicidal adolescents were more likely than depressed, non-suicidal adolescents to come from homes with chronic psychiatric illness lasting longer than 24 weeks,($p<.02$), especially depression and alcohol abuse. McKenry, Tishler, and Kelley (1983) found a significantly larger incidence of parental alcoholism in a sample of suicidal adolescents as compared to a control group ($p<.05$), although the parents of the two groups did not differ in their use of other drugs. In another study (Tishler, McKenry, & Morgan, 1981) 60% of suicidal adolescents rated their

parents" marriage as "poor", 18% said their parents had a drinking problem, and 22% said that another family member had demonstrated suicidal behavior.

McKenry, Tishler, and Kelley (1982) compared a group of 46 adolescent suicide attempters with a control group of 46 adolescents who presented to the same Emergency Room for medical problems. The suicidal teen-agers reported enjoying time spent with parents less ($p<.01$ for mothers, $p<.05$ for fathers). Fathers ($p<.02$) and mothers ($p<.06$) of attempters scored lower on marital adjustment and were more critical of their spouse's parenting (fathers: $p<.01$, mothers: $p<.08$). Fathers of attempters were more depressed ($p<.05$) and mothers, more anxious ($p<.05$). There were more previous suicide attempts in the families of attempters ($p<.05$), particularly among the mothers of this group ($p<.05$).

Acculturation. Our second research hypothesis will test whether, as reported in the literature, a deficiency in social integration is predictive of adolescent suicidal risk. The measures will be scores on Intellectual-Cultural Orientation (ICO) and Moral-Religious Emphasis (MRE) of the Family Environment Scale, defined by Moos & Moos (1986) as follows (p.2).

ICO: the degree of interest in political, social, intellectual, and cultural activities

MRE: the degree of emphasis on ethical and religious issues and values

Our assumption is that these are two important measures of acculturation. The second hypothesis is intended to answer the following question: does suicidal risk increase for those adolescents who are socially isolated from the surrounding culture?

Writing at the turn of the century, Emile Durkheim (1951) concluded that social factors explain the difference in suicide rates among various European nations. He described three types of suicide, reflecting three different social conditions. The first, egoistic suicide, occurs when people become excessively individualistic as a result of a weakening of their culture. Strong cultures embody powerful prohibitions against suicide and demand that the individual rise above despair in dedication to the needs of the group. The member of a strong culture receives moral support to persevere through difficult situations that might predispose one to suicidal behavior. In this way, Durkheim explains the generally higher suicide rates among Protestant nations which emphasize autonomy, in comparison to Catholic and Jewish cultures which place more emphasis on the collective.

Anomic suicide is similar to egoistic suicide in that both indicate an insufficient cultural presence in the life of the individual. In the case of egoistic suicide the culture is weak and the individual is excessively autonomous. The anomic culture, on the other hand, has become weakened as a result of the crisis of social change. As a result, human desires and expectation run rampant and social constraints are loosenend. This explains why suicide rates go up even in the midst of beneficial social change. Durkheim describes

the anomic suicide as the turbulent anger of an exhausted disillusionment that may not only be self-destructive, but harmful to others as well.

Durkheim's third type of suicide, altruism, is not relevant to this research hypothesis and will be discussed later as we look at how "family cultures" may feature this form of suicide.

Rubinstein (1983) used anomie to explain the dramatic difference between male and female adolescent (15-24) suicide rates in Micronesia in 1976-79: 49.5 for males (N=110) vs. 4.5 for females (N=10), a male/females ratio of 16:1. He explains this as due to the particular stresses on young males resulting from the Americanization of the culture after World War II. The influence of the Peace Corps and the change from a subsistence to a cash economy resulted in the obliteration of men's organizations that were used to socialize adolescent males outside of the nuclear family. The author particularly notes the high suicide rate where the Americanization is still underway and has not yet solidified new modes of adolescent socialization.

Amir's (1973) study of adolescent suicidality in Israel (1963-66) offers another special case of anomic suicide in its recognition of significantly higher suicide rates among immigrant families, families which may be presumed to have experienced more social change than native-born Israeli families. Of the suicidal immigrant Israeli adolescents 75% committed the suicidal act more than three years after their arrival in Israel. It seems that it is not so much the immediate

adjustment to Israeli culture that precipitates the suicidal act, as the more long-term consequences of adjustment to a new social environment.

Other researchers have attributed the high adolescent suicide rates among the Shoshonean Indians (McAnarney, 1979) and the population of Seattle, Washington (McAnarney, 1979) to the anomie of these rapidly changing societies. On the other hand, McAnarney attributes the very low adolescent suicide rate in Northern Sudan to strong, stable familial and religious patterns opposing suicidal behavior.

But problems of acculturation will also occur in strong, stable, life-affirming societies if individual families do not adequately promote cultural values and involvements. Given the serious problems in the families of suicidal adolescents discussed above, we would expect these families to be handicapped in their efforts to socialize their members to the surrounding culture. The following study supports this hypothesis.

Wenz (1979) compared 55 suicidal adolescents and their families with a control group of 55 non-suicidal adolescents and their families. He found that the the experimental group was characterized by "the family anomie syndrome", a combination of normlessness (as measured on Dean's Alienation Scale) and powerlessness (as measured by the Seeman-Rotter Scale). Normlessness correlated with adolescent suicidality for both high SES ($p=.001$) and low SES ($p=.05$) families. Powerlessness also correlated with adolescent suicidality in high SES ($p=.001$) and low SES ($p=.001$) families. Wenz theorizes that the lack

of strongly held values results in a powerlessness, which, in turn, is expressed in adolescent suicidal behavior.

Problems in acculturation result in the typically disengaged social stance characteristic of the suicidal adolescent. Corder, Shorr, and Corder (1974) found that suicidal adolescents were distinguished from a matched group of non-suicidal adolescents by their lack of school involvement ($p<.05$). Stanley and Barter (1970) report a significant difference ($p<.05$) between a suicidal and non-suicidal adolescent group in adequate social contact, defined as at least one social contact per week with another adolescent outside of family, job, or school. Thirty three per cent of suicidal adolescents scored on this variable, compared to 71% of a control group. Tuckman and Connon (1962) found significant gaps between suicidal adolescents and their parents in the atttribution of precipitants to the suicide attempts ($p<.01$). They also found that only 3% of these families sought help at a counseling or mental health agency in the six months following the attempt, another indicator of the social isolation of the family as a whole.

The patterns of social isolation seem to continue into the adulthood of suicidal adolescents. Otto (1972) conducted a 10-15 year follow-up of 1727 suicide attempts among Swedish children and adolescents under age 21, comparing them to a non-suicidal control group. Suicidal females emigrated more ($p<.01$), while more of both

sexes married in the control group ($p<.001$). There were more divorces among both sexes in the experimental group (males: $p<.01$, females: $p<.001$).

Flaherty (1983) tested the hypothesis that adolescent suicidal behavior correlates with social isolation by comparing the suicide rates of the general population with those incarcerated in juvenile detention centers and adult jails. He speculated that the three groups would present a sequence of increasing suicide rates. Adolescents would be most isolated in adult jails, where, by law, they are required to have separate quarters. There are more opportunities to socialize among inmates at juvenile detention centers, although not to the extent of the general population. Flaherty collected data on all 372 juvenile detention centers in the United States and 83% of 786 adult jails selected from a national total of 3493. His hypothesis was supported in that the adolescent suicide rate was significantly higher in the adult jails as compared to the general population ($p<.0003$) and to the juvenile detention centers ($p<.005$).

Social alienation appears to be a general characteristic of troubled teen-agers, not just those who are suicidal. Fox, Rotatori, Macklin, Green, and Fox (1983) report that a sample of 17 adolescents with severe behavior problems and significant academic deficits scored significantly ($p<.05$) lower on Intellectual-Cultural Orientation and Moral-Religious Emphasis when compared to a standardization sample of the Family Environment Scale. Tyerman and Humphrey (1981) also found that a group of 24 adolescents referred for psychiatric services scored

significantly ($p<.05$) lower on Intellectual-Cultural Orientation when compared to a matched control group, although there was no significant difference between the two groups' scores on Moral Religious Emphasis.

"The Family Bind". The literature gives much attention to family variables predictive of adolescent suicidal behavior. The third research hypothesis will specifically test the finding of Friedrich, Reams, and Jacobs (1982) about a set of family variables that seems to put the adolescent in a psychological bind, from which suicidal behavior may represent the only perceived escape route.

The authors collected data from 132 White 8th and 9th graders predominantly of an upper middle class background. They found that suicidal adolescents had low grades, but experienced their families demanding high levels of achievement. They also perceived their families providing little cohesion, organization, or independence --- qualities necessary for achievement in school or elsewhere. Using the same psychometric instruments, depressed, non-suicidal adolescents scored high on life stress, and low on family cohesion, paternal occupation, maternal and paternal education, and grades in school. While their situation may be gloomy, they do not show evidence of the pressure the suicidal adolescents experience to perform competently without the tools necessary to do so.

Let us now examine, in the light of other literature, the four components of this "family bind".

Achievement Orientation is defined by Moos & Moos (1986) as "the extent to which activities (such as school and work) are cast into an

achievement-oriented or competitive framework" (p. 2). The relevance of high expectations to achieve is supported by a study (McAnarney, 1979) that shows that the adolescent suicide rate is higher in cultures like Sweden and Japan that emphasize achievement and low in cultures like Malaysia that do not. Iga (1981) reports in a 1974-75 Japanese study that 40% of the male, and 60% of the female high school students expressed a wish to die. Twenty four per cent of the females and 23% of the males said they entertained suicidal thoughts at least on an occasional basis. Iga noted the intense pressure on these students to pass severely demanding examinations to enter the better universities, which, in turn determines economic and professional success for themselves and their families.

High achievement orientation may relate specifically to adolescent suicidal problems. Fox et al. (1983) found that a sample of 17 teen-agers with severe behavior problems and significant academic deficits scored significantly ($p<.05$) lower on Achievement Orientation of the Family Environment Scale than did the standardization sample for the instrument. Tyerman and Humphrey (1981) found no significant difference in the Achievement Orientation scores between an adolescent clinical group and a matched control group.

Organization is defined as "the degree of importance of clear organization and structure in planning family activities and responsibilities" (Moos & Moos, 1986, p. 2). We have already seen how a lack of strong cultural organization can contribute to anomic and egoistic suicide. But what about the revelance of this variable to the

family context? Do suicidal adolescents tend to come from disorganized families?

A number of authors have related adolescent suicidal behavior to the disorganization which results when a family system is unable to negotiate developmental changes, especially losses and separations. Fishman and Rosman (1981) propose that adolescent self-destructive behavior reflects a family in crisis, in which natural forces for change and development are pathologically opposed. The self-destructive behavior serves the homeostatic function of restabilizing the family in its old structure. A certain problematic change is allowed in the extensive responsibility the adolescent takes for the welfare of the family through his/her symptomatology. The authors refer to the serious costs of this accommodation and discuss the importance of structural family therapy to provide other alternatives.

From the standpoint of systemic family therapy Aldridge and Dallos (1986) reach a similar conclusion based on their observations of twenty families referred to a psychiatric day hospital. They noticed the following characteristics in families with a suicidal member.

1. the threat of the break-up of the family through the anticipated or accomplished leaving of a family member
2. an escalating process of "mutual negative connotation", i.e. no matter what anyone tries to do, it is seen as "wrong"
3. a family history of a family member developing symptoms in times of crisis and conflict to keep the family together.

Suicidal behavior is therefore a strategic move of the family system to thwart developmental change represented by the leaving of family members.

The disorganization of these families may well be the result of chaotic change within the family. Jacobs and Teicher (1967) found that adolescent suicide attempters typically had a history of parental loss (rather than one, even major loss) and that this resulted in an unstable family environment. One feature of this instability was an increased alienation and lack of understanding between parents and children beginning in the pre-adolescent years. Another was parental ineffectiveness in solving problems related to their children's development.

Teicher and Jacobs (1966) clarify their understanding of the process that leads to an adolescent suicide attempt by an examination of the expressed motivation for suicide attempts among 20 adolescents, ages 14-18, who presented at the Los Angeles County General Hospital between September, 1964 and mid-January, 1965. In this sample the authors report a rather homogeneous picture of excessive family conflict, broken homes, lack of meaningful social relationships, a history of serious trouble, previous suicide attempts, and an insurmountable problem (or "precipitant") which caused the disintegration of any remaining meaningful social relationships. They note a long sequence of problems ineffectively resolved by the subjects and their parents. They further note a five year escalation period before the first suicide attempt, a period in which the efforts of

parents to help the child result in a counter-productive exacerbation of the problems.

The lack of parental effectiveness appears related to a lack of understanding of the child, which itself may result from the process of increasing alienation between the two parties. Although there was only a 2% difference between parents and adolescents about the number of behavioral problems, there was a 35% difference between the two groups regarding the reasons for the problems. The authors note that parental lack of understanding would lead to frustration and nagging, rejection, or severe discipline. This escalates to the point where parents (as experienced by the subjects) give up caring and an almost total breakdown of communication occurs.

The final straw is the dissolution of remaining social relationships, such as, with peers. These relationships may have become overburdened with frustrated needs not met in relationships with parents. Parents further add to the stress on these relationships by their disapproval, for example, of emotionally intense sexual relationships. For suicidal girls, the final step may be their pregnancy from such a relationship and the abandonment of them by the boy. The process of alienation may continue beyond the first suicide attempt, given the angry and rejecting reaction of the parents. Consequently, suicide attempts of increasing lethality may occur until (or unless) the teen-ager is able to re-establish some type of meaningfully nurturant relationship. The authors note similar patterns in the mothers of the female attempters and that all of the mothers of

the male attempters had illegitimate children or were forced into marriages because of pregnancy.

Fox et al. (1983) found that a low sense of family organization was a general characteristic of socially maladjusted teen-agers. Their sample of 17 adolescents in alternative school programs scored significantly lower ($p<.05$) on Organization when compared to the standardization sample of the Family Environment Scale. Tyerman and Humphrey (1981), however, found no signicant difference in Organization scores between an adolescent clinical group and a matched control group

Independence is defined as "the extent to which family members are assertive, are self-sufficient, and make their own decisions" (Moos & Moos, 1986, p. 2). We have already discussed how the families of suicidal adolescents generally have difficulty giving individuals the freedom they need to develop as independent beings. To do so would raise the threat of separation and the intolerable loss of family members. In these families one has the sense of very frightened people desperately holding on to one another for survival. There is often a stifling closeness which fails to recognize the autonomy of the other family member.

Richman (1978, 1979) describes this phenomenon as "symbiosis without empathy" which he defines as "a certain kind of relationship in which the uniqueness or individuality of one member is seen as a threat and is, therefore, denied or disconfirmed" (Richman, 1978, p. 141). Such relationships are characterized by life-or-death attachments which oscillate between merger and isolation, enmeshment

and disengagement. This generates an atmosphere of continual crisis in which the threat of loss of identity at the pole of merger alternates with the threat of abandonment at the pole of disengagement. As a result, developmental progress is thwarted, needs are frustrated, relationships are muted, and responsive empathy becomes an impossibility. Attempts to differentiate within such a matrix result in powerful homeostatic mechanisms of total family abandonment or suicidal behavior. Suicide therefore represents both an attempt to stabilize the family in the face of the imperative for change, as well as the attempt of an individual to escape an impossible situation.

Jacobs and Teicher (1967) speculate that these factors are at play even when the apparent precipitant to the suicide attempt is the break-up of a romantic relationship. They note that these relationships are extremely possessive, as the child seeks gratification of important needs that should have been, but were not, met in stable relationships with parents. The break-up of such relationships may therefore lead to a desperate act of suicide on the part of a teen-ager who believes that all options are exhausted. The authors support this contention by noting that 38% of the experimental group (compared to 23% of the control group) were involved in such a relationship and that 58% of the relationships in the experimental group were ending compared to none in the control group.

A low sense of Independence in the family appears to be a general characteristic of troubled teen-agers. Fox et al. (1983) found that their sample of 17 adolescents in alternate school programs scored

significantly ($p<.05$) lower on this variable when compared to the standardization sample. The adolescent clinical sample studied by Tyerman and Humphrey (1981) also scored significantly ($p<.01$) lower on Independence when compared to a matched control group.

Cohesion is defined as "the degree of commitment, help and support family members provide for one another" (Moos & Moos, 1986, p.2). A number of studies show that suicidal adolescents as a group perceive less family support and that their perceptions are validated by outside observers.

Margolin and Teicher (1968) compared 13 suicidal boys, ages 14-18, with a control group matched for age, race, sex, and level of mother's education. They found the experimental mothers to be emotionally withdrawn both before and after the pregnancies of the subjects, which were in six cases not wanted. There was a characteristic loss of the father during the oedipal period, a reversal of roles with the mother, the threat of loss of the mother or mother-surrogate at the time of the attempt, and the mother's preoccupation with her own depression. Six of the experimental mothers did not visit their sons in the hospital and fathers were physically absent in 11 cases. In 8 of these situations the father had left before the child was 6 years old. In all cases, the mothers' marriages were precipitated by a pregnancy and in all but two cases, the suicidal boy functioned as "the man of the family", a position which depreived him of the parental nurturance he needed for his psychological development. Expectations were high for

them to help out their mothers and they were frequently criticized for not performing up to the level of maternal expectations.

Yusin, Sinay, and Nihira (1972) conducted a study which compared 15 suicidal adolescents with other emotionally troubled teen-agers, including those displaying aggressive behavior (N=11), drug-induced psychoses (N=9), and functional psychosis (N=15). They reached the following conclusion about the parents of the suicidal teen-agers.

> Parents of suicidal patients, compared to parents of children in the other groups showed the lowest incidence of a reaction (i.e. anger, worry, fear or confusion) to the crisis, or to drug use if their child took drugs. They were the least concerned about their children exhibiting socially acceptable behaviors. Their method of disapproving of their children's behavior was primarily silence and withdrawal. They were the least likely to resort to any form of physical punishment, to expect obedience, or to want more effective communication with their children, and they were not likely to contact a psychiatric facility about the crisis (p. 575).

Jacobs (1971) noted that only 20% of a sample of suicidal adolescents reported their attempts to their parents. Typically the attempters in this study referred to their suicidal behavior as a way to bring their problems to the attention of their parents, while the parents saw this behavior as just another problem to manage.

The unhappiness of suicidal adolescents with their family life is reflected in the fact that only 38% of the experimental group (vs. 94% of the controls) referred to their childhood as "happy". Forty per cent of the experimental group had step-parents who, in each case, were unwanted. The experimental group also had a much more negative attitude towards family events in general (marriages, pregnancies).

A low sense of family cohesion appears to be a general characteristic of troubled teen-agers. Fox et al. (1983) found that a sample of 17 socially maladjusted adolescents placed in alternative school programs scored significantly lower ($p<.05$) on Cohesion when compared to the standardization sample of the Family Environment Scale. More strikingly, Tyerman and Humphrey (1981) found that their clinical group of adolescents scored significantly ($p<.001$) lower on Cohesion when compared to a matched control group. Billings and Moos (1982) report that those families that score highest on Cohesion and Expressiveness experienced the fewest stressful events, had high levels of positive social interaction, had better coping mechanisms, moderately high self-confidence, little depression, and relatively few physical symptoms.

Summary. Deficiencies in family cohesion probably result in the lack of organization which, in turn, leads to a lack of effectiveness in working towards common goals. Paralleling the family system paralysis is the low sense of individual initiative, resulting in the failure of individuals to work towards their personal goals. While it would doubtless be depressing for a teen-ager to lack a strong sense of family and to feel powerless to work towards goals, he/she would be unlikely to become suicidal without the added pressure to achieve, the final element of "the family bind".

External Locus of Control. When the family is not organized for action and does not encourage individual initiative, a teenager may not develop a sense of control over his/her life and may well believe that

external factors are dictating his/her fate. Topol and Reznikoff (1982) compared suicidal adolescents with both a psychiatric non-suicidal and a non-psychiatric control group and found them to score higher on external locus of control and hopelessness. The sample was middle to upper class Whites, ages 13-19.

Our fourth research hypothesis will test whether external locus of control is predictive of adolescent suicidal risk in our sample. This concept is defined by Rotter (1966) as "the degree to which [the individual] feels the reward is controlled by forces outside of himself and may occur independently of his own actions. . . The effect of a reinforcement following some behavior on the part of a human subject, in other words, is not a simple stamping-in process but depends on whether or not the person perceives a causal relationship between his own behavior and the reward." (p.1) The general significance of this concept in the field of psychology is evident in the fact that the September, 1978 issue of Cross Contents reported that Rotter's monograph was, as of then, the most cited article (1345 times) and that the total number of citations had reached 2735 as of its February, 1982 issue.

Without a sense of meaningful impact on their environment, individuals with external locus of control lack important guidelines for their behavior. This contrasts with the person with internal locus of control who, according to Rotter "is likely to (a) be more alert to those aspects of the environment which provide useful information for his future behavior; (b) take steps to improve his environmental

condition; (c) place greater value on skill or achievement reinforcements and be generally more concerned with his ability, particularly his failures; and (d) be resistive to subtle attempts to influence him." (p. 25)

External locus of control appears equivalent to Peck's (1980-81) "fatalism", which he found to be a striking feature of adolescent suicide notes, especially compared to adult suicide notes. He defined "fatalism" as the perception that "one's destiny is determined and the individual is powerless to generate meaningful change" (p. 2). It is the perceived or actual failure to achieve defined goals while engaging in socially conforming behavior that results in desperate attempts to establish control over the external environment. These fatalistic attempts may take the form of political activism, criminal or delinquent behavior, or suicide attempts.

Peck's sample included 132 cases of suicide below the age of 35 during 1960-74 as determined by the Medical Examiner's Office of a large Mid-Western city. He discovered that roughly 1/3 (N=43) of the suicide notes had elements of fatalism, with the proportion of males (34%) and females (28%) roughly equal. It is interesting, however, that there was a strong inverse relationship between elements of fatalism and age among this sample (Gamma=.41). This suggests that adolescent suicide victims, compared to adult suicide victims, are particularly characterized by this quality.

Other studies corroborate these findings. Corder, Shorr, and Corder (1974) found that a group of suicidal adolescents were

distinguished from a matched group of non-suicidal adolescents by lack of control over the environment ($p<.025$) and lack of investment in the future ($p<.025$). Boor (1979) discovered that the age groups 15-24 and 25-34 are the only ones that showed a steady linear increase in suicide rates from 1973 to 1974 to 1976 and that they were also the only age groups in a national sample that showed a significant increase in external locus of control. It does indeed appear that suicidal adolescents feel out of control of their lives, both by comparison with non-suicidal adolescents and suicidal adults, and that they share this sense of lack of control with suicidal people in early adulthood.

While external locus of control appears related to adolescent suicidal behavior, studies have also related the construct to a much wider spectrum of adolescent problems including schizophrenia (Brannigan, Rosenberg, & Loprete, 1977), vocational immaturity (Khan & Alvi, 1983), illegitimate pregnancy (Meyerowitz & Malev, 1973), and delinquency (Parrott & Strongman, 1984). A large body of literature has also related external locus of control to various symptoms of depression.

Moyal (1977) studied 225 fifth and sixth grade children in a working class area of Toronto and found that, as in studies with adults, external locus of control correlated negatively with self-esteem ($r=-.577$ on the Piers-Harris Children's Self Concept Scale) and negatively with choice of adaptive responses ($r=-.461$ on the Moyal-Miezitis Stimulus Appraisal Scale). Externality correlated <u>positively</u> with depression ($r=.477$) and choices of responses considered helpless

(r=.401), self-blaming (r=.340), and externalized blaming (r=.231). Johnson and McCutcheon (1981) found that scores on Beck's Hopelessness Scale correlated significantly (r=.41, p<.001) with scores on Rotter's Locus of Control Scale among a sample of 97 adolescents from the Seattle area. Weisz, Weiss, Wasserman, and Rintoul (1987) studied 186 children, age 8-17, referred to children's outpatient clinics and discovered that childhood depression was related to low levels of perceived personal competence in areas where the subjects believed that others could be effective. There was no relationship, however, between depression and low sense of control in areas where the children perceived no contingency between anyone's efforts and desired outcomes. Childhood depression therefore appears related to a personalized sense of helplessness in comparison with the effectiveness of others, rather than to some global sense of not being able to reach one's goals.

While Whites generally score more "internal" than other races, various studies show that the interaction with racial variables is complex. Through their factor analysis of the Nowicki-Strickland Locus of Control Scale for Children, Wolf, Sklov, Hunter, and Berenson (1982), showed that Whites scored more internal on two of the three factors they isolated, which the authors label "personal control and helplessness" and "luck". There was no significant difference between the races on "achievement and friendship". Similarly, Buriel and Rivera (1980) studied 86 Anglo and 80 Mexican-American high school students from Santa Ana, California and discovered that the Anglos were

more internal on politics ($p<.05$) while the Mexican-Americans were more internal on respect ($p<.05$). These differences disappeared, however, when the effect of SES was removed. Hendrix (1980) found, that externality among Black teen-agers may not be as problematic as externality among Whites. He studied 240 seniors from four public high schools in Southern Louisiana representing low, middle, and upper-middle SES and found a positive correlation ($p<.001$) between self-esteem as measured on Bachman's Self-Esteem Scale of the Family Relations Scale and external control as measured on Rotter's I-E Scale. There was no significant correlation between control and self-esteem among the Whites.

An important consideration is the family variables that relate to locus of control in children and adolescents. Surprisingly, Davis and Phares (1969) found no correlation between the I-E scores of college students and their parents. They did find, however, that the most "internal" college students reported a more positive involvement with their parents with less sense of rejection, hostile control, inconsistent discipline, or withdrawal of relations than did the "externals". This finding may be due to a more positive set on the part of the internals, since the authors found no general correlation between the students' I-E scores and their parents' attitudes. There were, however, correlations specifically with fathers and mothers considered separately. Fathers of internals scored as more indulgent and less protective than mothers of internals, while the opposite pattern was found among the parents of externals. The authors also

discovered that large I-E differences between parents and offspring correlated with a more disciplinarian attitude of the parent (Fathers: p<.01, Mothers: p<.05). Higher Rejection scores of fathers and lower Indulgence scores of mothers were also directly related to the degree of I-E similarity (Fathers: p<.05, Mothers: p<.05). There was no relationship, however, between differences between parents on locus of control and either child-rearing attitudes or parent-child differences on locus of control.

Nowicki and Schneewind (1982) examined the relationship between family environment and locus of control variables in a study that included 12- and 18 year-old German (N=322) and American (N=403) males and females. English and German forms of the Family Environment Scale and the Nowicki-Strickland Internal-External control scales for children and adults were used in the study. Correlations between the variables were generally as predicted. Internals perceived their families as offering high degrees of cohesion and organization with opportunities for personal expressiveness, and cultural, moral-religious, and recreational involvement. Their families were low in conflict and control and valued personal independence.

One measure of the significance of Rotter's locus of control theory is the extensive literature critiquing and reconceptualizing the concept. Major questions have been raised about the integrity of the construct, its definitional clarity, and its relationship to attribution theory.

While Rotter (1966) defined locus of control as a unidimensional construct, subsequent factor analytic studies reveal that multiple factors are involved. Nowicki (1976) conducted an extensive study of 1226 predominantly White, middle class school children, grades 3-12. He discovered that a general factor of helplessness accounted for 36% of the variance at the elementary level, 38% at the junior high school level, and 41% at the high school level. One secondary factor had to do with achievement and strength and another seemed to measure luck.

Other studies, however, have questioned whether there really is a general factor for locus of control. Raine, Roger, and Venables (1981) administered the CNSIE to 97 children in England and discovered four major factors, none of which statistically merited the distinction of being considered a "general factor". Walters and Klein (1980) administered the CNSIE to 1082 high school students from four school systems in both urban and rural areas of the American Southeast. Their factor analysis revealed two major factors measured by only eight items of the CNSIE. Wolf, Sklov, Hunter, and Berenson (1982) did an analysis which revealed three interpretable factors on the CNSIE related significantly to age, sex, and race variables. The first variable, "personal control and helplessness" showed significant age ($p<.0001$), race ($p<.0001$), and sex ($p<.05$) differences with internals being more likely older, male, and White. The second factor ("achievement and friendship") correlated significantly with age ($p<.0001$) and sex

($p<.0001$) with older children and girls being more internal. On the third factor ("luck") internals were more likely to be older ($p<.05$) and White ($p<.0003$).

More serious still is Collins' (1974) challenge of the assumption that internal and external items are symmetrical and form a single dimension. If this were so, then the internal and external items should load in a single factor with opposite signs. The author found, however, that they loaded in different factors and that their correlation was close to zero.

Given these disturbing findings, it should not be surprising to discover ambiguities and controversy in the elaboration of Rotter's pithy definition. Weiner (1979) maintained that the construct really consisted of two independent dimensions: locus of causality (whether the cause of reinforcement is internal or external) and controllability (whether the cause is controllable). Minton (1967) claims that locus of control is a theory of power, while Weisz and Stipek (1982), however, limit it to locus of causality. Controversies rage over whether or not locus of control can be equated with perceived control, outcome expectation, personal control, power -- all of which have been defined in a variety of ways.

Given these problems, Palenzuela (1984) developed a new scale. He redefined locus of control by separating it from attributions of success-failure and by emphasizing multidimensional expectations of contingency-noncontingency. In so doing, he incorporated Seligman's original concept of learned helplessness.

Summary

A review of the literature shows that adolescent suicidal behavior is very complex and involves many variables. Nonetheless, an examination of the more rigorous empirical and experimental studies leads to the conclusion that certain inter-related factors correspond to increased suicidal risk in this age group. The purpose of this dissertation is to replicate these findings.

The first finding is that suicidal risk among adolescents is related to a serious deficiency in well-being, as reflected by the number and intensity of problems that suicidal adolescents experience. Their families are also heavily burdened by difficult, chronic problems.

The second finding is the lack of participation in a strong, stable society to sustain the individual. The social isolation of suicidal adolescents is perhaps one of the more serious problems that contributes to a deficiency in well-being. It also reflects, to some extent, how handicapped these heavily burdened families are in their ability to integrate their children into the ambient society.

The third finding is a constellation of family variables that produces a lethal bind for the adolescent. One is the lack of family cohesion, perhaps itself the result of a family burdened with problems, multiple losses, and overall instability. The diffuseness of these families results in disorganization and the inability to work towards common goals. The family paralysis is exemplified at the micro level by the lack of encouragement of individual initiative in striving

towards personal goals. Without family cohesion or organization and without the sanction of assertive behavior, the suicidal adolescent, nonetheless, feels the imperative to achieve significant accomplishments.

The fourth finding is the external locus of control of suicidal adolescents, undoubtedly the outcome of a family that is organized neither at the group nor individual level for effective action. As a result, suicidal adolescents feel largely out of control of their lives. They tend to believe that environmental factors determine whether or not they get what they need.

CHAPTER III

METHODOLOGY

Introduction

In this chapter the research methodology is presented. First, the subjects are described, followed by the procedures by which they were obtained. Following this is a description of the psychometric instruments and the statistical analysis of the study. The chapter concludes with a list of the research hypotheses.

Subjects

The subjects of the study are 50 9th-11th grade students of the Millis (Massachusetts) High School who received written parental permission to participate in the study. The sample appeared to be totally White and predominantly middle-class. They live in a small, rural town (population, approximately 7000) on the fringe of the Greater Boston area. The sex and age distribution of the sample are reported in Table 3.

Procedures to Obtain Subjects

The initial step was an informal contact with the Superintendent of the Millis (Massachusetts) public school system. I talked to him

Table 3

Sex and Age Distribution of the Sample

Age	14	15	16	17	Total
Female	6	14	7	3	30
Male	5	8	5	2	20
Total	11	22	12	5	50

about the project and stimulated his interest. He recommended the next step, a formal meeting with himself and the Director of Pupil Personnel Services (DPPS). At this meeting I made a formal proposal and responded to their questions and comments. The Superintendent proposed that data be collected in the context of an instructional unit on adolescent suicide in the High School Guidance classes and asked that the results of the study be presented to school staff at an inservice meeting. The Superintendent also appointed the DPPS as my official school liaison for the project.

The DPPS directed me to draft a letter to send to the parents of all 313 Millis High School students, informing them of the study and requesting their written permission for their children to participate. She also said that she would consult with her staff to determine their support of the project, as well as the feasibility of collecting research data within the context of the high school guidance classes.

The DPPS reported to me substantial school commitment for the study, including the Superintendent, herself, and her staff. After

reviewing the scheduling of the guidance classes, however, she determined that it would not be possible to collect the data in those classes and that other arrangements would need to be made. The next step would be for her to arrange for us a meeting with the High School Principal to solicit his support for the project.

At this meeting the Principal expressed reservations about the study, saying that it would take students away from important "instructional time". He also raised questions about public support for the project. He did say, however, that he would not oppose the study and recommended a new format for the data collection, i.e, that research subjects be taken out of one 44-minute class period on April 28, at which time the research instruments would be administered and the data collected. The DPPS and I agreed with this proposal and began to consider how I might make a separate instructional presentation to the students on adolescent suicide. The DPPS proposed that I meet with the High School Guidance Counselor to arrange for such a presentation in one of the guidance classes.

At the meeting with the DPPS and the Guidance Counselor we decided that I would make this presentation on May 5, 1987. It would be videotaped and made available in that format to other Guidance classes. In the meantime the first draft of the letter to the parents was reviewed by the Superintendent, the DPPS, and my dissertation advisor. Their suggestions and criticisms were incorporated into the second draft of the letter.

Subsequently, the DPPS reported to me that the Superintendent had decided that the draft of the letter to the parents, which had been approved by the Superintendent and the DPPS, should be presented to the School Committee by the DPPS on April 7. He talked of the importance of keeping the School Committee informed of the project in the event they received inquiries from parents. The DPPS asked if I would also attend, to which I agreed.

In a later meeting with my dissertation advisor we consulted by phone with a school psychologist and the senior author of the Suicide Probability Scale. It became clear that a substantial change in the study was needed. The original plan was to collect the data anonymously. The revised plan was that students' responses should be identifiable so that appropriate services could be provided for those whose responses indicated high suicidal risk. I contacted the DPPS and the Superintendent about this change. Both saw the wisdom of the change, but also raised questions about "political opposition". The Superintendent said that the revised plan would have to be first checked out quietly with the School Committee at the April 7 meeting. He said that I should not attend this meeting and that afterwards he would contact me about the next step to be taken.

Due to the press of other items on the agenda, however, my proposal was not discussed at the April 7 School Committee meeting. The DPPS asked me to come to the April 20 School Committee meeting to help her present the proposal at that time.

In the meantime I met with my Dissertation Committee to present the third draft of my Proposal for their consideration. Some changes were recommended, especially the importance of solid follow-up services for those students identified as "high risk" by the study. Committee members also stressed that I needed solid support from all relevant school professionals, without which I would have to consider another setting. As a result, I completed an application to the Newton (Massachusetts) Public School System as a potential back-up.

On April 14 I consulted by phone with Joan Green, Assistant to Dr. Rudolf Moos, regarding the use of the Family Environment Scale in this study. She made some helpful suggestions and sent me articles on the Family Environment Scale, which are incorporated in this disseration.

On April 20 the DPPS and I met with the School Committee. We presented an outline of the study, responded to several of their questions, and received their formal unanimous endorsement of the project. They asked to be kept informed.

On April 30 I contacted the DPPS and we formulated a plan for follow-up services for the high risk students. She identified her staff resources as a school psychologist, two guidance counselors, the school nurse, and a health teacher. Community resources, especially for the summer months when the school does not provide counseling services, were Leonard Morse Hospital (Natick), the Cutler Clinic (Norwood), and Southwood Hospital (Norfolk).

On May 5 I presented my instructional unit on adolescent suicide to one of the guidance classes. The students seemed quite interested

and asked a number of questions. The Guidance Counselor said it was one of the liveliest presentations she had seen with an outside speaker. The class was videotaped for presentation to other classes.

I prepared the fourth and final draft of the Dissertation Proposal and the Proposal for the UMass Human Subjects Committee, which I submitted on May 12.

The DPPS informed me that, due to the lateness of the school year, it would not be possible to include the graduating seniors in the study. On May 15 I sent out the letter, signed by myself, the Superintendent, and the DPPS (Appendix A), to the parents of all the 9th, 10th, and 11th graders. In this letter I made myself available to answer parents' questions by including my home phone number and scheduling a meeting for parents on May 28. No parents called me or attended the meeting. Of the 236 letters I sent out I received permission to administer the instruments to 63 of the high school students. There were six parents who sent a note back that they definitely did not want their children to participate in the study.

On June 8 the data was to be collected in the school cafeteria during the first 44-minute class period of the day, beginning at 9:10 a.m. Less than 20 students arrived, however, because neither the teachers nor the students had been adequately informed of the study. After consulting with the Principal about these problems, we decided that I would come back the next day to try again to collect the data during the first class period. In the meantime, the Principal promised

to inform the teachers about the study and provide them with a list of the participating students to be excused from their class.

On the morning of June 9 the data (Appendix F) was finally collected. Teachers co-operated in releasing students and the students were reasonably well-behaved in completing the questionnaires. The Guidance Counselor helped me to supervise the data-collection and deal with any problems that might arise (none did). Of the 63 who had received parental permission to participate, 50 arrived in the cafeteria to complete the questionnaires. Of the 13 who did not, some were absent from school and some simply chose not to participate. Forty-nine of the students completed all of the questionnaires and the other student finished all of the questionnaires except the Nowicki-Strickland Scale. Some of the students arrived late for the session and several stayed beyond the end of the period to finish up.

On the afternoon of June 9 I scored the SPS. I informed the DPPS by phone that afternoon of a student whose score and individual responses indicated that he was a severe suicide risk. The DPPS said she did not know this student personally, but raised questions about the sincerity of his responses. Before taking action, she said she would therefore consult with the Principal, members of her staff, and teachers to get their personal impressions of the student.

On the morning of June 10 I submitted to the DPPS a list of students whose scores on the SPS indicated a need for monitoring and/or intervention . This included further elaboration of the student whose score indicated the possibility of severe suicidal risk. It also

included the names of two student who scored as a mild suicide risk, both of whom were already involved in counseling. There was one student who scored "subclinical suicide risk", but who requested to talk to a counselor about "a personal matter". Six scored as a "subclinical suicide risk", but gave individual responses that indicated some suicidal ideation. I recommended counseling for these students or, at the very least, monitoring of them to prevent the development of any worsening problems.

That morning I also talked with the Guidance Counselor who was familiar with the student who scored as a suicidal risk. She stated that she would be following up on my concern by talking to other school staff about the student. When I called back two days later, the Guidance Counselor reported some of the student's teachers also expressed concern about him, while others said that he appeared to be functioning well in their classes.

In the several days after the data collection I also scored the other instruments that I administered to the subjects. I computed mean scores on the different instruments for the sample as a whole, as well as for subgroups divided by age and sex. This was used as a check on various mulitiple regression analyses I performed on the data through the computerized SPSS program at the University of Massachusetts.

Instrumentation

All subjects began by filling out an information sheet (Appendix C) where they indicated their name, age, grade, and whether

or not they would "like to talk to a professional counselor about suicidal thoughts or any other personal problem". On this sheet there was also space for additional comments.

The subjects next completed four questionnaires. The dependent variable (suicide risk) was measured by the Suicide Probability Scale. The Crespi Inventory of Adolescent Well-Being (Appendix D) was administered to test the first hypothesis. The family variables which constitute hypotheses two and three (Cohesion, Independence, Achievement Orientation, Intellectual-Cultural Orientation, Moral-Religious Emphasis, Organization) were measured by the Moos Family Environment Scale. Locus of Control was measured by the Nowicki-Strickland Locus of Control Scale For Children (Appendix E). Below is a description of each scale, some background on its development, and information on reliability and validity.

The Suicide Probability Scale (SPS). According to the manual, the Suicide Probability Scale "is a brief, self-report measure designed to aid in the assessment of suicide risk in adolescents and adults" (Cull & Gill, 1982, p.1). Derived scores indicate "the statistical likelihood that an individual belongs in the population of lethal suicide attemptors" (ibid., p. 130).

Individuals respond to 36 items by rating the frequency of certain subjective experiences and past behaviors using a 4-point Likert scale. Responses range from "None or a little of the time" to "Some of the time", "Good part of the time", or "Most or all of the time". The SPS produces an overall T-score plus T-scores on the four subscales

that constitute the instrument: Hopelessness, Suicide Ideation, Negative Self-Evaluation, and Hostility. Probability Scores are then determined by factoring in the presumptive risk of the populations from which the subjects come. The "high-risk" group are patients of suicide prevention centers, crisis clinics, and psychiatric inpatient facilities. "Intermediate risk" subjects are those from a general outpatient clinic population or psychiatric inpatients with no clinical signs of suicidal ideation or major depression. Our subjects will be construed as "low risk", as are all samples of the general population.

The four subscales were constructed through an extensive factor analysis. "Suicide Ideation" reflects the extent of both ambiguous and explicit thoughts and behaviors associated with suicide. "Hopelessness" measures not only negative expectations about the future, but also other components of depression, such as loneliness, dysphoric mood, and overall dissatisfaction with life. "Negative Self-Evaluation" includes a sense of distance from important others and a lack of self-efficacy and self-worth. "Hostility" is largely a measure of the impulsive expression of aggression.

The 36 items of the SPS were chosen from an initial sample of 200 items on the basis of the following considerations: their relationship to at least one of the common theories of suicide, clinical importance as judged by interviews and a retrospective analysis of suicide notes, easy conversion into a clear statement, appropriateness for a variety of people of diverse backgrounds, and unique contribution to the predictive validity of the Scale. The SPS was standardized using a

sample of 562 (220 males and 342 females) individuals from the San Antonio area who had never made a serious suicide attempt or had any previous psychiatric history. This sample was ethnically diverse, although deficient in its reflection of the sociodemographic characteristics of the general American population. Two criterion groups were also formed using a psychiatric inpatient sample of 260 individuals (87 males and 173 females) and 336 people who had made serious suicide attempts (100 males, 236 females).

Item responses were weighted differently in the computation of T-scores according to a criterion weighting method proposed by Guttman (1941). This method was found to be superior to others in its internal consistency and classification accuracy. According to this method, the mean score on a criterion variable, such as number of suicide attempts, was determined for all who gave a particular response to a statement. A linear transformation of these criterion means for all item responses resulted in integer weights ranging from 0 to 5. Probability of inclusion in the group of suicide attemptors was determined by the Bayes Formula for three different categories of presumptive risk.

The authors of the test offer the following statistics on reliability. Internal consistency was estimated at .93 using alpha coefficients in comparing even- and odd-numbered cases in all three standardization and criterion groups. Split-half reliability, as measured by the Spearman-Brown formula, resulted in corrected correlation coefficients ranging from .58 for Negative Self-Evaluation to .88 for Suicide Ideation, with a correlation of .93 for the total

scale. A study of 478 heterogeneous subjects tested ten days apart resulted in a test-retest reliability of .94. True score variance, as determined by Anastasi's method (1976, pp. 120-121), is estimated to be .85.

The authors offer statistics on validity as follows. Item content validity is supported by the following evidence: high face validity for the inclusion of items in subscales, high internal consistency and split-half reliability, low correlations between subjects' responses on the SPS and the Lie scale of the MMPI, average item-subscale correlations ranging from .51 to .75, and item-total correlations ranging from .11 to .72. Construct validity is supported by the factorial analysis that generated the four subscales. Criterion validity was supported by the power of subscales and total scores to correctly predict inclusion in the criterion group ($p<.001$). Correct classification percentages for suicide attemptors was 98.2%, 83.0%, and 29.2% among the high, intermediate and low presumptive risk base rates, respectively. (Very low base rates of suicidal behavior in the latter group account for the low classification accuracy therein.) Construct validity is supported by studies which link SPS scores with patterns of scores on the MMPI found to be related to suicidality. In another study the SPS correlated at .70 with the Farberow and Devries Suicide Threat scale.

Golding (1985), however, criticizes the SPS on a number of key points. He notes that the test authors have failed to show that their instrument represents a significant advance in suicide prediction

beyond those means already available, especially clinical interviews and the MMPI. He also states that factor analysis and interscale correlations fail to support the four-scale structure of the SPS and that the internal consistency of the Hostility and Negative Self-Evaluation subscales are rather low. There are also problems with discriminant validity, given high percentages of both false positives and false negatives in classifying subjects according to mild, moderate, or severe suicide risk. Golding also notes the susceptibility of the SPS to both conscious and unconscious distortions.

The Inventory of Adolescent Well-Being (Crespi). This scale consists of 20 statements to which the subject replies "not at all", "sometimes", often", and "almost always". Each response is weighted and added up, yielding a score of "adolescent well-being". Means are provided for non-hospitalized "normals" (62), adjudicated delinquents (57), and psychiatric inpatients (52). Criterion validity was determined by its capacity to predict for a sample of 544 adolescents into which of four groups they might belong: non-hospitalized "normals", adjudicated delinquents, psychiatric patients, and discharged psychiatric patients. Discriminant analyses indicated that the Crespi Scale correctly classified 71% of the adolescents into the four groups. By comparison, the General Well-Being Schedule (Fazio, 1977) correctly classified 49% and the Current Adjustment Rating Scale, 46%. Construct validity is supported by the finding that former psychiatric patients living at home most closely resembled the

"normals" with 86.8% of the former patients reporting an improvement in their general well-being. Among the four groups, males uniformly reported higher levels of well-being. Surprisingly, however, no significant difference was found in scores on well-being between discharged patients living at home receiving outpatient services vs. those who do not.

Family Environment Scale (FES): The FES is one of ten Social Climate scales developed by Rudolf H. Moos and his associates. It consists of ten subscales that measure people's perceptions of the social-environmental characteristics of their families. Each describes a dimension of family life: relationships, personal growth, or system maintenance.

Six of the ten subscales are related to the second and third research hypotheses. The authors of the FES define them as follows (Moos & Moos, 1986):

Cohesion	the degree of commitment, help, and support family members provide for one another
Independence	the extent to which family members are assertive, are self-sufficient, and make their own decisions
Achievement Orientation	the extent to which activities (such as school and work) are cast into an achievement-oriented or competitive framework
Intellectual Cultural Orientation	the degree of interest in political, social, intellectual, and cultural activities
Moral Religious Emphasis	the degree of emphasis on ethical and religious issues and values

Organization	the degree of importance of clear organization and structure in planning family activities and responsibilities

The four subscales which were administered, but which are not related to research hypotheses, are as follows.

Expressiveness	the extent to which family members are encouraged to act openly and to express their feelings directly
Conflict	the amount of openly expressed anger, aggression, and conflict among family members
Active-Recreational Orientation	the extent of participation in social and recreational activities
Control	the extent to which set rules and procedures are used to run family life

Scores on each subscale are determined on the basis of yes/no answers to a mixture of questions relevant to each subscale (9 questions per subscale).

Normative data were collected for 1125 normal and 500 distressed families. The normal group was a heterogeneous national sample. The distressed group came from a variety of sources, including a family clinic and a probation and parole department. Subjects were also chosen from families of alcohol abusers, general psychiatric patients, and children with behavioral problems.

A large pool of potential items was chosen initially from other Social Climate scales and structured interviews with people from a variety of families to fit the theoretical constructs of the ten subscales. The final selection was based on the following considerations: 1/overall item split should be about 50/50 2/ items should correlate more with their own subscale than with any other

3/ each subscale should have approximately equal numbers of items scored true and false to control for acquiescence response set 4/ the subscales should have low to moderate intercorrelations 5/ each item and subscale should discriminate among families 6/ each of the above considerations should be met in subsamples of White, ethnic minority, and distressed families.

The authors offer data to support the reliability of their instrument. The internal consistencies of the subscales are all acceptable, ranging from a moderate Cronbach's Alpha of .61 for Independence to a substantial .78 for Cohesion. Correlations among the scales are quite low, accounting for an average of less that 10% of the subscale variance. This supports the contention that the scales measure distinct, although somewhat related aspects of family environments. Test-retest reliability was determined for 47 individuals from 9 different families at an 8-week interval between testings.

The reliabilities were all in the acceptable range, from a low of .68 for Independence to a high of .86 for Cohesion. Overall profile stability over a period of 12 months averaged .71 for a sample of 85 families.

Content and face validity were considered in the initial stages of the construction of the instrument by formulating definitions of the constructs, preparing items to fit the constructs, and reviewing these decisions with independent raters. Item selection was also determined by item intercorrelations, item-subscale correlations, and internal

consistency analyses. Construct validity is supported by comparisons of FES scores with those of other instruments. FES cohesion was found to be positively related to the Procidano-Heller indices of perceived support from family members and friends (Swindle, 1983), the Locke-Wallace Marital Adjustment Scale (Waring, McElrath, Lefcoe, & Weisz, 1981), and the Spanier Dyadic Adjustment Scale (Abbott & Brody, 1985). High scores on the Family Routines Inventory were related, as predicted, to high FES cohesion, organization and control and low conflict (Jensen, James, Boyce, & Hartnett, 1983). The authors further examined construct validity by developing indices of family behaviors and relating them to FES scales. They found, for example, that Moral-Religious Emphasis was highly correlated with a measure of religious participation for an alcoholic and community sample (r=.62). Construct validity is further supported by a large body of research using the FES which has classified distinctive patterns for families of different compositions, of different ethnic backgrounds, and suffering from different kinds of problems.

Discriminant validity is supported by the lack of a high correlation with different constructs. For example, Russell (1980) found relatively little relationship between FES Cohesion and cohesion as measured by the Family Sculpture Test or by an adapted version of the Bowerman and Bahr Identification Scale. Despite an apparent similarity in the instruments, the author claims that they actually tap quite different aspects of family life. There was also no significant correlation between the FES and the Card Sort Procedure which differs

from the FES by measuring a family's problem-solving behavior rather than its perceptions of itself.

Busch-Nagel (1985) criticizes the authors of the FES for failing to establish an adequate conceptual framework in support of the choice of the 10 subscales and the three underlying domains. She also notes the lack of normative data on important subdivisions of the normal sample according to differences in social class, geographical region, family size, partners' age, and education. She also states that the predictive validity of the test is weakened by the lack of an explicit conceptual relationship between test constructs and psychological and family functioning. The test manual does not state, for example, which subscales significantly distinguish distressed from normal families and which subscales predict for different types of distressed families. In this regard Lambert (1985) stresses that the FES should be used descriptively to clarify differences among family members in their perceptions of the family or to study differences between families of different types. The FES, she claims, should not be used normatively, e.g. to make comparative judgments about the relative worth of different family environments.

The Nowicki-Strickland Locus of Control Scale For Children (CNSIE). This is a paper-and-pencil inventory of 40 questions answered by marking off "yes" or "no" next to each. It is based on Rotter's (1966) definition of the central construct. Internal locus of control is the perception of a causal relationship between one's behavior or relatively permanent characteristics and the rewards he/she receives.

External locus of control, on the other hand, is the perception that factors other than the self are responsible for producing the rewards one desires.

Items were chosen for the CNSIE according to the following considerations: a fifth grade reading level, appropriateness for elementary and high school students, unanimous agreement among nine clinical psychologists, the construction of a more homogeneous scale with greater discriminative performance, and comments from teachers and pupils.

Reliability estimates were determined through an administration of the Scale to 1017, mostly White elementary and high school students in four different communities bordering a large metropolitan school system. Item-total relationships, as evidenced in biserial item correlations, suggested moderate, but consistent correlations for third, seventh, and eleventh graders. Estimates of internal consistency as determined by the split-half method, corrected by the Spearman-Brown formula, are .63 for Grades 3, 4, 5; .68 for Grades 6, 7, 8; .74 for Grades 9, 10, 11; and .81 for Grade 12. Test-retest reliabilities sampled six weeks apart were .63 for the third grade, .66 for the seventh grade, and .71 for the tenth grade.

Construct validity was also analyzed with this sample. Since children are expected to become more internal with age, construct validity was supported through the determination that this in fact occurred. Achievement orientation should also correlate with internal locus of control, given a massive study of almost a half million

American youngsters which found that the lack of belief in destiny was the strongest determinant of school achievement (Coleman, Campbell, Hobson, McParland, Mood, Weinfield, & York, 1966). In a sample of 182 Black third graders and 171 Black seventh graders, there were significant correlations with the I+ but not the I- scores of the Intellectual Achievement Responsibility Scale (third grade, r=.31, p<.01; seventh grade, r=.51, p<.01). Correlations with the Bialer-Cromwell scale of locus of control for children were also significant (r=.41, p<.05) in a sample of 29 White children, aged 9-11. Scores on the CNSIE were not significantly related to social desirability as measured on the Children's Social Desirability Scale.

Another study offers support of the construct validity of the CNSIE while raising questions about sex differences. Belter and Brinkmann (1981) sampled 193 public high school students in a small mid-Western community. They found a significant correlation between externality as measured by the CNSIE and scores on the Magical Beliefs Scale (p<.001) for females. While external males also tended to score high on the Magical Beliefs Scale, the correlation (p<.10) did not reach statistical significance. There was no significant correlation for either sex's locus of control scores with scores on the General Religious Commitment Scale.

Through factor analyis studies a number of researchers have seriously questioned the unidimensionality of the construct. Nowicki (1976) conducted an extensive study of 1226 predominantly White, middle class school children, grades 3 to 12. He discovered that a general

factor of helplessness accounted for 36% of the variance at the elementary level, 38% at the junior high school level, and 41% at the high school level. One secondary factor had to do with achievement and strength and another seemed to measure luck.

Other studies, however, have questioned whether there is a general factor for locus of control. Raine, Roger, and Venables (1981) administered the CNSIE to 97 children in England and discovered four major factors, none of which statistically merited the distinction of being a "general factor". Walters and Klein (1980) administered the CNSIE to 1082 high school students from four school systems in both urban and rural areas of the American Southeast. Their factor analysis revealed two major factors measured by only eight items of the CNSIE. One factor labelled "social control" related to control over things outside oneself, whereas the other ("self-control") related to control of oneself. Wolf, Sklov, Hunter, and Berenson (1982) did an analysis which revealed three interpretable factors on the CNSIE related significantly to age, sex, and race variables. Their sample included 406 students (age 8-17, grades 5-12) in a biracial rural school community. The first variable, "personal control and helplessness" showed significant age ($p<.0001$), race ($p<.0001$), and sex ($p<.05$) differences with internals being more likely older, male, and White. The second factor ("achievement and friendship") correlated significantly with age ($p<.0001$) and sex ($p<.0001$) with older children and girls being more internal. On the third factor ("luck") internals were more likely to be older ($p<.05$) and White ($p<.0003$).

Statistical Analysis

A multiple regression analysis of the data was conducted through the computerized Statistical Package for the Social Sciences (SPSS). The dependent variable was the scores from the Suicide Probability Scale. The independent variables were the scores from the Nowicki-Strickland Locus of Control Scale For Children, the Crespi Inventory of Adolescent Well-Being, the ten subscales of the Family Environment Scale, and the age and sex of the subjects.

The first statistical procedure was to determine if our subjects differed significantly from subjects in the norm groups used to standardize our research instruments. The mean scores of our subjects were compared to the mean scores reported in standardization samples for the CNSIE and the ten FES subscales. A T-test of the difference between each pair of means was conducted, using an alpha of .Ø5. The general character of our subjects' SPS scores was determined by an examination of their average T-Score.

The second statistical procedure was to determine if there was any interaction effect between the demographic variables (age, sex) and the other independent variables. The correlation matrix of the variables was examined to determine the correlations between the demographic variables and the other variables. These correlations were examined for significance at the .Ø5 level.

The research hypotheses were next tested. Since Hypotheses One and Four featured one independent variable, these hypotheses were tested using a simple analysis of variance (ANOVA). Hypotheses Two and

Three included multiple variables and so were tested using a step-wise regression with the relevant independent variables entered. For Hypothesis Two, the independent variables were scores on FES Cohesion, Organization, Independence, and Achievement. For Hypothesis Three the independent variables were FES Intellectual-Cultural Orientation and Moral-Religious Emphasis scores.

Finally, a step-wise regression analysis was conducted utilizing all the variables. The purpose of this procedure was to determine the best regression equation. At each step the independent variable was chosen which best contributed to an explanation of the remaining variance in the dependent variable. Variables were selected for the regression equation until the limit of .Ø5 significance was reached. A multiple regression analysis was then conducted using all the independent variables, regardless of the signicance of their contribution to the explanation of the variance of the dependent variable. The two regression equations were then compared with regards to their capacity to predict the dependent variable.

Research Hypotheses

These then are the research hypotheses which were tested in the light of the results presented in the next chapter.

1. There is no difference in suicidal risk among adolescents who vary on scores of adolescent adjustment as measured by the Crespi Inventory of Adolescent Well-Being.

2. A constellation of cultural factors including low intellectual-cultural orientation and low moral-religious emphasis does not relate to suicidal risk among adolescents.
3. A constellation of family factors including high achievement orientation, low family cohesion, low family organization, and low family emphasis on independence does not relate to suicidal risk among adolescents.
4. There is no difference in suicidal risk among adolescents who vary on measures of locus of control.

CHAPTER IV

RESULTS

Introduction

In this Chapter the results of the study are presented and the research hypotheses tested. We conclude with a step-wise regression to determine which group of our independent variables can be used to predict most accurately the dependent variable. Before proceeding to these matters, however, we first compare our data with that of other studies to determine if there are any significant differences between our subjects' responses and those of the general population of adolescents. We shall also determine if there are significant interaction effects between the demographic variables (age, sex) and the other independent variables.

How representative are the responses of our subjects?

In this section we shall compare the mean scores of our subjects with the mean scores of norm groups reported by the authors of the psychometric instruments used in our study. We shall find that our means are generally similar to those of the norm groups with some interesting exceptions. The most striking of these is our subjects' SPS scores, as indicated by their mean T-scores in Table 2.

Table 4

Suicide Probability Scale Means

	Raw Score	T-Score
Female	53.2	60
Male	58.5	63
Total	55.3	62

The standardization sample, from which the T-scores were computed, consisted of 562 individuals selected at random in the late 1970's from the general population of adolescents and adults in the San Antonio, Texas area. Excluded were those who acknowledged any previous psychiatric history or had ever made a serious suicide attempt. The mean SPS T-score of our sample was 62, more than one standard deviation above the mean of the sample used to standardize the instrument. Our subjects, both male and female, therefore represent a significantly higher suicide risk than that of the general population. This is especially striking when we consider the following two facts. The norm group included both adults and adolescents. Adults in general have a higher suicide risk than adolescents. If our sample were compared to a norm group comprised strictly of adolescents, we could assume that the average T-Score would be even higher.

Our subjects' means on the Family Environment Scale's ten subscales were compared to the means of adolescent children of 446 families, as reported in the Family Environment Scale Manual (Moos &

Moos, 1986, Appendix E, p. 65). T-tests were performed on the differences between each pair of subscale means to determine if the null hypothesis of no difference between the means could be rejected at the .05 level. Although the actual N of the FES study was unknown, there was no difference in the results between using an N of 446 and an N of 1000. (It is unlikely that 446 families would have more than 1000 adolescents.) The result of this procedure was that only one hypothesis was rejected: that of no difference between the means of Intellectual-Cultural Orientation. Our sample had a significantly lower mean on this variable than did the norm group.

A similar procedure was conducted on the difference between our subjects' mean score on the Nowicki-Strickland Locus of Control Scale and that of a study reported by the test authors (Nowicki & Strickland, 1973, Table 1, p. 149). For the sake of comparison, we used statistics that resulted from a combination of the male and female 9th, 10th, and 11th graders of the experimental sample. The T-test failed to reject the null hypothesis of no difference between the means at the .05 level of significance. Using the same procedure, there did not appear to be a significant difference between our subjects' mean score on the Crespi (63.1) and that of the sample that the test author used to standardize his instrument (62.3).

An analysis of the interaction between demographic variables (age, sex) and scores on the other independent variables reveals only one significant correlation: that between age and the Active-Recreational

Orientation Subscale (r=.301, p<.05). Older subjects scored higher on this variable.

In conclusion, we can state that our sample is roughly representative of the general adolescent population with some significant exceptions. Our sample had a strikingly high mean score of suicide risk and a particularly low mean score on Intellectual-Cultural Orienation. Males scores were not significantly different from those of females. Older subjects scored higher on Active-Recreational Orientation.

Testing the Hypotheses

In this section we shall be using the data from our study to test the research hypotheses at the .05 level of significance.

Hypothesis #1: There is no difference in SPS scores among adolescents who vary on scores of adolescent adjustment as measured by the Crespi Inventory of Adolescent Well-Being.

Table 5 lists the independent variables in the order of their correlations with the dependent variable. It shows that, of all 14 independent variables, Crespi scores correlated the highest (r=-.876, p<.001) with SPS scores and were, therefore, our best single predictor of the dependent variable. Since the correlation coefficient is negative, as expected, low Crespi scores predict high SPS scores.

Table 5

Independent Variables: Correlations with Suicide Probability Scale Scores

Variable	r	p<
1. Crespi (Well-Being)	-.876	.001
2. FES Cohesion	-.743	.001
3. Nowicki-Strickland (Locus of Control)	.646	.001
4. FES Active-Recreational Orientation	-.556	.001
5. FES Independence	-.459	.001
6. FES Conflict	.389	.01
7. FES Moral-Religious Emphasis	-.371	.01
8. FES Organization	-.368	.01
9. FES Expressiveness	-.230	NS
10. Age	-.229	NS
11. FES Control	.207	NS
12. FES Intellectual-Cultural Orientation	-.195	NS
13. Sex	.124	NS
14. FES Achievement Orientation	-.037	NS

An analysis of variance is provided in Table 6 for the following regression formula, where E_1 is the estimate of the SPS score and X_1 is the Crespi score.

Regression Equation #1: $E_1 = 211.371 + (-2.474)X_1$

Table 6

Regression Equation #1:

Analysis of Variance

Dependent Variable: Suicide Probability Scale Scores

Independent Variable: Crespi Scale Scores

Source	df	SS	MSS	F	Sign./F
Regression	1	17301.939	17301.939	157.884	<.001
Error	48	5260.141	109.586	-	-
Total	49	22562.080	-	-	-

Multiple R	.876
R Square	.767
Adjusted R Square	.762
Standard Error	10.468

Hypothesis #1 is rejected. There clearly is a difference in SPS scores among adolescents who vary on Crespi Scale scores. Those with high well-being scores tend to have low SPS suicide risk scores, and vice versa. Using a regression equation, Crespi Scale scores can be used to estimate SPS scores with a high degree of accuracy.

Hypothesis #2: A constellation of cultural factors including low intellectual-cultural orientation and low moral-religious emphasis does not relate to SPS scores among adolescents.

Table 5 shows that, as expected, FES Intellectual-Cultural Orientation scores correlated negatively with SPS scores (r=-.195), although the relationship failed to reach statistical significance (p>.10). The expected negative correlation between SPS and FES Moral Religious Emphasis scores (r=-.371), however, was statistically significant (p<.01).

A stepwise regression in which both variables were entered produced Regression Equation #2 which included MRE, but excluded ICO, scores. The statistics for this equation are presented in Table 7. In the equation E_2 is the predicted SPS score and X_2 is the MRE score.

$$\underline{\text{Regression Equation \#2}}: E_2 = 71.120 + (-4.062)X_2$$

Table 7

Regression Equation #2:

Analysis of Variance

Dependent Variable: Suicide Probability Scale Scores

Independent Variable: FES Moral-Religious Emphasis Scores

Source	df	SS	MSS	F	Sign./F
Regression	1	3109.514	3109.514	7.673	.008
Error	48	19452.566	405.262	-	-
Total	49	22562.080	-	-	-
Multiple R		.371			
R Square		.138			
Adjusted R Square		.120			
Standard Error		20.131			

Regarding Hypothesis #2, the results are mixed. Moral-Religious Emphasis scores relate moderately to SPS scores and can be used in an equation to estimate the SPS score. Since the correlation coefficient is negative (as expected), higher MRE scores relate to lower SPS suicide risk scores, and vice versa. Unexpectedly, Intellectual-Cultural Orientation scores do not relate significantly to SPS scores. They also do not significantly add to the accuracy of a regression equation in which Moral-Religious Emphasis scores are used to predict SPS scores.

Hypothesis #3: A constellation of family factors including high achievement orientation, low family cohesion, low family organization, and low family emphasis on independence does not relate to SPS scores among adolescents.

Table 5 shows that, unexpectedly, FES Achievement Orientation had the lowest correlation with SPS scores ($r=-.037$), indicating virtually no relationship at all between the two variables. As expected, however, there were significant negative correlations between the dependent variable and the other three FES variables: Cohesion ($r=-.743$, $p<.001$), Independence ($r=-.459$, $p<.001$), and Organization ($r=-.368$, $p<.01$).

When these four variables were entered in a stepwise regression with SPS scores as the dependent variable, only Cohesion and

Independence were chosen. Table 8 presents the statistics for the following regression equation in which E_3 is the estimate of the SPS score, X_3 is the Cohesion score, and Y_3 is the Independence score.

Regression Equation #3: $E_3 = 107.496 + (-5.491)X_3 + (-3.148)Y_3$

Table 8

Regression Equation #3:

Analysis of Variance

Dependent Variable: Suicide Probability Scale Scores

Independent Variables: FES Cohesion Scores

FES Independence Scores

Source	df	SS	MSS	F	Sign./F
Regression	2	13341.163	6670.582	34.001	<.001
Error	47	9220.917	196.190	-	-
Total	49	22562.080	-	-	-
Multiple R		.769			
R Square		.591			
Adjusted R Square		.574			
Standard Error		14.007			

Regarding Hypothesis #3, the results are mixed. Achievement Orientation scores are virtually unrelated to SPS suicide risk scores. Organization scores correlate moderately with the dependent variable when considered separately. Since the correlation is negative, high FES Organization scores are related to low SPS scores, and vice versa.

Neither FES Achievement Orientation nor FES Organization scores, however, would significantly increase the accuracy of estimating the dependent variable by their inclusion in an equation with FES Cohesion and Independence scores. These two variables negatively correlate to a moderate degree with the dependent variable, such that high scores on each relate to low SPS suicide risk scores, and vice versa. Of these four FES variables, Cohesion is most related to SPS scores. Its accuracy in estimating the dependent variable is significantly increased by the inclusion of FES Independence scores in a regression equation.

Hypothesis #4: There is no difference in SPS scores among adolescents who vary on measures of locus of control.

Nowicki-Strickland locus of control scores correlated moderately with SPS scores ($r=.646$, $p<.001$) with the more "external" subjects receiving higher SPS scores. Statistics are provided in Table 9 for the following regression formula, where E_4 is the estimate of the SPS score and X_4 is the Nowicki-Strickland score.

Regression Equation #4: $E_4 = 53.029 + .174X_4$

Research hypothesis #4 is rejected. There is a difference in SPS scores among adolescents who vary on this measure of locus of control. Those with higher CNSIE scores, i.e., those with a more "external"

Table 9

Regression Equation #4:

Analysis of Variance

Dependent Variable: Suicide Probability Scale Scores

Independent Variable: Nowicki-Strickland Scale Scores

Source	df	SS	MSS	F	Sign./F
Regression	1	9411.772	9411.772	34.354	<.001
Error	48	13150.308	273.965	-	-
Total	49	22562.080	-	-	-

Multiple R	.646
R Square	.417
Adjusted R Square	.405
Standard Error	16.551

orientation, receive higher SPS suicide risk scores, while those who are more "internal" have lower SPS suicide risk scores. The relationship between the two variables is moderate.

Multiple Regression Analysis

A multiple regression analysis using all 14 independent variables produced a cumbersome formula highly predictive of SPS scores ($r=.932$, $p<.001$). A step-wise regression chose three of these variables, resulting in a much simpler formula, yet still maintaining a high degree of accuracy ($r=.902$, $p<.001$). The three variables chosen were (in order) Crespi Scale and FES Active-Recreational Orientation scores,

followed by sex, with females coded as "1" and males as "2". These variables comprise Regression Equation #5, the statistics of which are presented in Table 1Ø. In this Equation E_5 is the estimate of the SPS score, X_5 is the Crespi score, Y_5 is the FES ARO score, and Z_5 is the sex code.

Regression Equation #5:

$$E_5 = 2ØØ.851 + (-2.265)X_5 + (-1.934)Y_5 + 6.345Z_5$$

Table 1Ø

Regression Equation #5:

Analysis of Variance

Dependent Variable: Suicide Probability Scale Scores

Independent Variables: Crespi Scale Scores

FES Active-Recreational Orientation Scores

Sex (Females="1", Males="2")

Source	df	SS	MSS	F	Sign./F
Regression	3	18371.949	6123.983	67.23Ø	<.ØØ1
Error	46	4190.131	91.Ø9Ø	-	-
Total	49	22562.Ø8Ø	-	-	-
Multiple R		.9Ø2			
R Square		.814			
Adjusted R Square		.8Ø2			
Standard Error		9.544			

Summary

Our subjects' scores were representative of a general adolescent population with two significant exceptions. Our subjects scored very high on suicide risk and low on Intellectual-Cultural Orientation. There were no significant male-female differences. Age did not make a significant difference in our scores, except that older subjects scored higher on Active-Recreational Orientation.

Research Hypothesis #1 was rejected, supporting our belief that scores on the Crespi Inventory of Adolescent Well-Being would correlate significantly with suicide risk scores on the Suicide Probability Scale. In fact, Crespi Scale scores were the single best predictor of the dependent variable among all the variables we chose to study ($r=-.876$, $p<.001$). Since the correlation is negative, high scores on the Crespi Scale predict low scores on the SPS, and vice versa.

Research Hypothesis #2, however, was not rejected. As expected, Moral Religious Emphasis scores did significantly correlate negatively with the dependent variable ($r=-.371$, $p<.01$). Surprisingly, however, there was no significant negative correlation between Intellectual-Cultural Orientation and the dependent variable. ICO was also not chosen after MRE in a stepwise regression analysis. While Moral-Religious Emphasis is a significant predictor of suicide risk, its power of prediction is not significantly increased when ICO scores are included in a regression equation with MRE scores.

Research Hypothesis #3 was also not rejected. As expected, Cohesion, Independence, and Organization significantly correlated

negatively with the dependent variable. Surprisingly, there was virtually no correlation at all between Achievement Orientation and suicide risk scores. While it was anticipated that a stepwise regression would select all four of these variables for a prediction equation, only Cohesion and Independence were chosen.

Research Hypothesis #4 was rejected. As expected, Nowicki-Strickland scores correlated significantly with the dependent variable. Suicide risk is higher with subjects whose responses indicate more external locus of control. Suicide risk is lower with the more "internal" subjects.

A stepwise regression was conducted in which all 14 independent variables were entered. The Crespi Scale, FES Active-Recreational Orientation, and sex were chosen for inclusion in a regression formula which predicts SPS scores with a high degree of accuracy.

CHAPTER V

DISCUSSION

Central Finding

The central finding of this study is that suicide risk among adolescents can be predicted with a high degree of accuracy using a simple 20 question inventory of psychological well-being, 9 questions about participation in social and recreational activities, and sex. By placing these variables in a regression formula, scores are generated which can be used as an initial screening device for adolescent suicide risk in normal populations. This method of assessing suicide risk is preferable to the use of suicide inventories or more sophisticated clinical instruments which may be threatening for normal populations and difficult for non-psychologists to interpret. Those who score as a high suicide risk can then be targetted for a more substantial evaluation and intervention program.

The high correlation between the Crespi and SPS scores is consistent with a thorough reading of the literature. Numerous experimental studies link adolescent suicide to a variety of factors related to compromised psychological functioning. Moreover, these are the same factors that are related to other adolescent problems. In

short, there is no one factor predictive of adolescent suicide, nor can adolescent suicidal behavior be easily separated out from other adolescent problems in terms of its related variables. It therefore makes sense that the best predictor of adolescent suicide risk is an instrument, such as the Crespi scale, which measures the multi-faceted dimensions of adolescent well-being.

The second predictor variable in the step-wise regression is Active-Recreational Orientation on the Family Environment Scale, defined as "the extent of participation in social and recreational activities" (Moos & Moos, 1986, p.2). Items on this subscale assess family involvement with friends, sports, movies, and hobbies, especially outside the home. From this we can conclude that adolescent suicide risk increases as families become withdrawn from their social environments. Suicidal adolescents are not likely to come from families with a high degree of involvement with people and activities outside the home.

FES ARO was chosen as the second variable entered into the regression formula over two variables that correlated higher with the dependent variable, FES Cohesion and the Nowicki-Strickland scores. These two variables were also not included in subsequent steps. We may conclude, therefore, that, in predicting adolescent suicide risk, the Crespi and FES ARØ together adequately explain the variance in the dependent variable explained by these two variables. We may also conclude that the Crespi Scale would be improved as a predictor of adolescent suicide risk by including at least some,if not all, FES ARO

items. Such a process would not add greatly to the length of the Crespi Scale or decrease its value as a simple, quickly administered inventory.

The third predictor variable entered was sex, with males demonstrating a higher risk for suicide than females. While sex alone is a very poor predictor of suicide (r=.124), it does make a significant addition (p=.026) to a regression equation which already includes Crespi and FES ARO scores. This is consistent with adolescent suicide rates for males which are generally four times higher than those for adolescent females. In 1982 the suicide rate for White males 15-19 years old was 15.5, compared to 3.4 for White females of the same age group. Non-White males in this age group are also much more likely than females to kill themselves (7.2 vs. 1.9).

The Nowicki-Strickland Locus of Control scores were our third best individual predictor of adolescent suicide risk (r=.646, p<.001). This variable narrowly missed significance (p=.055) for inclusion as the fourth variable in our prediction formula. Because of the variance among the CNSIE scores and the interaction of individual variables, the same research design with a different sample might well have resulted in its inclusion. A study with a larger, more heterogeneous sample would more adequately test whether locus of control scores should be included in the regression equation predicting suicide risk.

Unexpected Results

Our subjects appeared to be representative of the general adolescent population with some interesting exceptions. Their mean SPS score was more than one standard deviation above the mean of the test's standardization sample. This is consistent with reports from the Director of Pupil Personnel Services of an increasing incidence of self-destructive behavior at the High School.

One potential explanation derives from the theory of Emile Durkheim. The unusually high risk of suicide in the sample may be due to the anomie of the community. In recent years, young, middle-class families have been settling there, decreasing the political influence of the established farm families. The life-style and values of the two groups are strikingly different and political clashes occur frequently between them. The newer settlers seem to be gaining power, as evidenced by the retirement of one of the "old guard" from the Board of Selectman, the defeat of her husband's business interests in favor of a Groundwater Protection Plan, the vindication of the police chief who had become their enemy, and the overwhelming override of Proposition 2 1/2 to pay for the rennovation and expansion of school buildings.

In testing the research hypotheses, the most surprising result was the failure to confirm the implication of the "family bind", i.e. that a constellation of high FES Achievement Orientation and low FES Cohesion, Independence, and Organization is a significant predictor of adolescent suicide risk. In a step-wise regression in which these four variables were entered, only Cohesion and Independence were selected.

While Organization, considered separately, did correlate significantly ($r=-.368$, $p<.01$) with the dependent variable, the relationship between SPS and Achievement Orientation scores approached randomness ($r=-.037$).

These results contrast with those of a study by Friedrich, Reams, and Jacobs (1982) in which these four FES variables were selected as together constituting a significant ($r=.58$, $p<.0001$) predictor of severity of suicidal ideation and intent as measured by the self-harm item of the Beck Depression Inventory. What factors could explain these different results?

The most obvious explanation is that the dependent variables in the two studies are different. Friedrich, Reams, and Jacobs (1982) used one item on the Beck Inventory to measure suicidal ideation, whereas our study utilized the 36-item Suicide Probabily Scale to measure a more comprehensive variable, suicide risk. The SPS includes eight items measuring suicidal ideation as well as items measuring hopelessness, negative self-evaluation, and hostility. Cull and Gill (1986) report, however, a high correlation ($r=.90$) between the Suicide Ideation Subscale and the total SPS score and in our sample the correlation was even higher ($r=.936$). Suicidal ideation therefore appears to be a very good predictor of overall suicide risk. Perhaps the discrepancy between the two studies is simply due to the fact that Friedrich, Reams, and Jacobs (1982) used only one item to measure their dependent variable.

Another factor may be differences between the subjects of the two studies. Friedrich, Reams, and Jacobs (1982) studied younger adolescents, 8th and 9th graders ranging in age from 13 to 16 (M=14.4). Our study included 9th, 10th, and 11th graders, ages 14 to 17 (M=15.2). Their sample was also primarily upper middle class (Hollinghead Index M=1.9) and apparently more suburban than our sample. Possibly, in the more suburban, higher SES families pressures to achieve become a significant factor in the prediction of suicidal ideation, whereas they do not in a more middle class group.

Another surprising result was the failure to confirm the hypothesis that a constellation of FES Moral-Religious Emphasis and Intellectual-Cultural Orientation would be a significant predictor of adolescent suicide risk. The hypothesis was based on a review of the literature which implicated withdrawal from the extra-familial culture with increased incidence of adolescent suicide. There was, however, partial confirmation of the hypothesis in the significance of Moral-Religious Emphasis (-.371, $p<.01$) and Active-Recreational Orientation ($r=-.566$, $p<.001$) as predictors of the dependent variable.

It appears that specific kinds of extra-familial involvement are critical, rather than a more general withdrawal from the outside world. The lack of basic social, recreational, and religious activities appears related to suicide risk for adolescents. A low degree of involvement in the more cerebral, "high brow" activities measured by FES ICO (lectures, plays, concerts, libraries, intellectual discussions) does not appear to relate to adolescent suicide risk.

Limitations of the Study

Ideally, adolescent suicide risk would be accurately predicted from the results of one questionnaire measuring overall well-being and easily obtained background information. Our study included two "background" variables (age, sex), of which one (sex) was chosen for the regression formula. Unfortunately, other demographic variables (race, religion, SES, sibling position, family constitution) were not entered to determine if any might significantly increase the prediction of the dependent variable. Other variables of interest, and easily obtainable in a school setting, are grades and scores on standardized tests. There are also other, more difficultly measured variables (depression, number of losses, substance abuse, family scapegoating) which have been implicated in adolescent suicide, but which were not included in this study. They would have served as a further check on the comprehensiveness of the Crespi scale.

While the results of this study are impressive, they are limited by the rather homogeneous nature of the sample. All of the subjects were White Anglos from the same small community, attending the same high school. They are even a small subgroup of this school population, distinguished by the fact that both they and their parents agreed to their inclusion in a teen suicide study.

Implications For Further Research

The limitations of this study suggest implications for further research. Other independent variables might be evaluated for their

contributions to the determination of adolescent suicide risk. More direct measures of the dependent variable might be used, such as in a large psychiatric population with a significant number of eventual teen suicides. Future studies could more adequately sample the gamut of adolescence. Similar research might also be conducted with other age groups to determine if our findings pertain to other segments of the life-span. Finally, the replication of this study in non-school settings or communities with a different cultural mix would also be valuable in determining the generalizability of these results.

Implications For Practitioners

While further research into the factors that predict adolescent suicide risk is very much needed, there are already some clear implications for practitioners. One is that adolescent suicide risk can be adequately estimated in a rather simple, non-threatening manner by knowing the sex of the subject and his/her responses on a questionnaire which covers various areas of adolescent functioning. The Crespi Inventory of Adolescent Well-Being is useful in this regard, although its value could be significantly enhanced by the inclusion of several questions on the active-recreational orientation of the subject's family. Scores on such a revised Crespi Scale, adjusted for the sex of the subject, could then be used to identify high suicide risk teenagers. These teens could then be targetted for more extensive individual evaluations and interventions.

This study also bears implications for those concerned with the development of adolescent suicide prevention programs. The high correlation of multi-factor well-being scores with suicide risk scores is consistent with the literature which relates a variety of variables to adolescent suicide. Since these variables have also been related to other adolescent problems, it does not make sense for a school system or a community to develop special, elaborate teen suicide prevention programs --- something which often happens after several dramatic teen suicides have occurred. The best suicide prevention strategy is rather to promote overall adolescent functioning. The consequence of this effort should be a reduction of adolescent suicide, as well as a reduction of other types of adolescent problems.

CHAPTER VI

SUMMARY: A PUBLISHABLE ARTICLE

Correlates of Adolescent Suicide Risk

Abstract

The purpose of this study is to determine a simple, non-threatening way to screen for suicide risk in nonclinical adolescent groups. The subjects are 50 White 9th-11th grade public high school students from a small, suburban town. The dependent variable is their scores on the Suicide Probability Scale. Independent variables are their age, sex, and scores on the ten Family Environment Scale subtests, Crespi Inventory of Adolescent Well-Being, and Nowicki-Strickland Locus of Control Scale For Children. A stepwise regression produced an equation with Crespi scores, FES Active-Recreational Orientation, and sex which estimates SPS scores with a high degree of accuracy.

Introduction

Can suicide risk be predicted? The Suicide Probability Scale (Cull & Gill, 1982) has been designed to do this. But the SPS is a relatively threatening instrument with items that speak directly to

issues of suicide. The purpose of this research is to determine whether or not there are other ways this risk can be assessed.

Given this question, three areas which might relate to suicide prediction were selected. One was general well-being, the second was locus of control, and the third was family environment.

General well-being was chosen as a global measure of psychological functioning since suicidal adolescents, as a group, display a wide variety of debilitating problems. When compared to a psychiatric non-suicidal and a non-psychiatric control group, suicidal teen-agers checked off the most items on a problem list (Topol & Reznikoff, 1982). In another study (Smith & Crawford, 1986) teen suicide attempters were the most pessimistic, reported the highest percentage of unpleasant change in their lives, and had the highest involvement in psychotherapy. There is widespread depression in this group (Smith & Crawford, 1986; Crumley, 1979; Tishler, McKenry, & Morgan, 1981), but also a high incidence of psychosis (Balser & Masterson, 1959; Stone, 1973; Glaser, 1981), personality disorders (Otto, 1972; Crumley, 1972), substance abuse (Crumley, 1979; McKenry, Tishler, & Kelley, 1983), and neurological problems (Corder, Shorr, & Corder, 1974; Rohn, Sarles, Kenny, Reynolds, & Heald, 1977). Smith and Crawford (1986) found that the female suicide attempters of their sample indicated a striking incidence of rape.

Locus of control was chosen because suicidal adolescents as a group feel powerless to direct the important events of their lives. In a controlled study (Topol & Reznikoff, 1982), they scored on the

"external" end of a continuum defined by Rotter (1966) as "the degree to which [the person] feels the reward is controlled by forces outside of himself and may occur independently of his own actions (p. 1)." External locus of control is therefore the perception that factors other than the self are responsibile for producing the rewards one desires. Internal locus of control, on the other hand, is the perception of a causal relationship between one's behavior or relatively permanent characteristics and the rewards he/she receives.

In a similar vein, Peck (1980) found that "fatalism" was a particular feature of adolescent suicide notes. He defined the concept as the perception that "one's destiny is determined and the individual is powerless to generate meaningful change (p. 2)". Corder, Shorr, and Corder (1974) found that a group of suicidal adolescents was distinguished from a matched group of non-suicidal adolescents by lack of control over their environment and lack of investment in the future. Boor (1979) discovered that in a national sample the age groups 15-24 and 25-34 were the only ones that showed a steady linear increase in suicide rates from 1973 to 1974 to 1976. They were also the only groups that showed a significant increase in external locus of control.

Family environment was chosen because of the extensive literature relating suicidal behavior to various aspects of the family. Topol and Reznikoff (1982) found that suicidal adolescents perceived their families as most distant from their notion of the ideal family. Other studies (Corder, Shorr, & Corder, 1974; Smith & Crawford, 1986)

describe a great deal of conflict with parents, the most frequent precipitant of an adolescent suicide attempt (Tuckman & Connon, 1962; Amir, 1973). Friedrich, Reams, and Jacobs (1982) found in their research sample that suicidal adolescents experienced their families as demanding high levels of achievement, but without providing family cohesion, organization, or the sanction of individual independence necessary to achieve. Another study (Wenz, 1979) found that these families were characterized by a powerlessness that derives from the lack of strongly held values. Difficult, unresolved losses are also a feature of suicidal families (Jacobziner, 1960; Heillig, 1983; Jacobs & Teicher, 1967; Stanley & Barter, 1970), as well as severe problems managing normal developmental change (Fishman & Rosman, 1981; Aldridge & Dallos, 1986). Garfinkel, Froese, and Hood (1982) found more economic stress, medical problems, psychiatric and drug abuse problems, and less parental involvement in the homes of suicidal adolescents.

The clinical value of this research would be the development of relatively simple and unobtrusive means to determine suicide risk among adolescents. Adolescents who score high could then be targetted for a more substantial evaluation and the implementation of the appropriate interventions. A clarification of these variables will also be useful in the area of primary prevention. Psycho-educational programs designed to promote healthy adolescent functioning should be evaluated, at least in part, by their reduction of salient suicide risk factors.

Method

Subjects. The subjects of the study are 50 White, middle-class 9th-11th grade students who received written parental permission to participate in the study. They live in a small, rural town on the fringe of the Greater Boston area. The students ranged in age from 14 to 17. There were 20 males and 30 females.

Procedures. The design of the study developed through extensive collaboration with school officials, including the Superintendent, the High School Principal, the Director of Pupil Personnel Services, the High School Guidance Counselor, and the School Committee. In return for the opportunity to collect data, I offered the school system the following services: a list of students whose responses indicated the possibility of suicide risk, a class presentation on teen suicide, an "open house" discussion with concerned parents, and an inservice meeting to acquaint school staff with the problem of adolescent suicidal behavior.

A major consideration was whether or not to guarantee the students anonymity. After consulting with a number of professionals, we decided to have students identify themselves on a data sheet so that we could follow up on any students whose responses indicated serious suicide risk. Only in this way could the school provide appropriate services, using both school resources and local mental health facilities.

Of the 50 subjects, one scored as a "serious suicide risk", two scored as a "mild suicide risk", and six scored as a "subclinical suicide risk" with individual responses that indicated some suicidal ideation. There was also a student who scored as a "subclinical

suicide risk" who asked to talk to a counselor about "a personal matter". The Director of Pupil Personnel Services was informed by phone several hours after the collection of the data of the student who scored as a "serious suicide risk". I gave her a list of all the students mentioned above the following day.

Instrumentation. This study is based on the assumption that the Suicide Probability Scale (SPS) is a valid measure of suicide risk among adolescents. The SPS was standardized using a normal, non-clinical sample (N=562) and two criterion groups of psychiatric inpatients (N=260) and individuals who had made serious suicide attempts (N=336). Raw scores are converted to Probability (of suicide risk) Scores by a weighting of individual items and an incorporation of the presumptive risk of the population to which the subject belongs (general population, psychiatric outpatients, psychiatric inpatients and outpatients in crisis). The test authors report odd-even internal consistency at .93 and ten day test-retest reliability of .94. Construct validity is supported by the factor analysis that generated the four subscales (suicide ideation, hopelessness, negative self-evaluation, hostility) and a .70 correlation with the Farberow and Devries Suicide Threat Scale. Criterion validity is supported by its accuracy of classification of suicide attempters ($p<.001$), especially among the high (98.2%) and intermediate (83.0%) presumptive risk groups.

The Inventory of Adolescent Well-Being (Crespi, 1985). This scale consists of 20 statements to which the subject replies "not at all",

"sometimes", often", and "almost always". Each response is weighted and added up, yielding a score of "adolescent well-being". Means are provided for non-hospitalized "normals" (62), adjudicated delinquents (57), and psychiatric inpatients (52). Criterion validity is supported by its capacity to predict for a sample of 544 adolescents into which of four groups they might belong: non-hospitalized "normals", adjudicated delinquents, psychiatric patients, and discharged psychiatric patients. Discriminant analyses indicated that the Crespi Inventory correctly classified 71% of the adolescents into the four groups. By comparison, the General Well-Being Schedule (Fazio, 1977) correctly classified 49% and the Current Adjustment Rating Scale (Truax, 1968), 46%. Construct validity is supported by the finding that former psychiatric patients living at home most closely resemble the "normals", with 86.8% of the former patients reporting an improvement in their general well-being. Among the four groups males uniformly reported higher levels of well-being. Surprisingly, however, no significant difference was found in scores between discharged patients living at home receiving outpatient services and those who did not.

Family Environment Scale (Moos & Moos, 1986). The FES consists of ten subscales, each with nine yes/no items. Scores on the subscales reflect people's perceptions of the social-environmental characteristics of their families. FES norms are based on data collected from 1125 normal and 500 distressed families. Internal consistencies of the subscales range from .61 to .78 and test-retest

reliability ranges from .68 to .86. Inter-subscale correlations are quite low, which supports the contention that the subscales measure distinct, although somewhat related aspects of family environments. Construct validity is supported by comparisons of FES scores with those of other instruments.

Nowicki-Strickland Locus of Control Scale For Children (Nowicki & Strickland, 1973). This is a 40 question inventory based on Rotter's (1966) definition of the central construct. Items were chosen for the following considerations: a fifth grade reading level, appropriateness for elementary and high school students, unanimous agreement among nine clinical psychologists, the construction of a homogeneous scale with discriminative performance, and comments from teachers and pupils. Reliability estimates were determined through an administration of the Scale to 1017, mostly White elmentary and high school students in four communities bordering a large metropolitan school system. Split-half reliability ranged from .63 to .81 and test-retest reliability (six weeks apart) ranged from .63 to .71. Various factor analytic studies (Nowicki, 1976; Raine, Roger, & Venables, 1981; Walters & Klein, 1980; Wolf, Sklov, Hunter, & Berenson, 1982) show the Scale is measuring a number of different constructs.

Statistical analysis. A multiple regression analysis of the data was conducted utilizing the computerized Statistical Package for the Social Sciences (SPSS). The dependent variable was scores on the Suicide Probability Scale (SPS). The independent variables were scores on the Crespi Inventory of Adolescent Well-Being, the

Nowicki-Strickland Locus of Control Scale For Children, the ten subscales of the Family Environment Scale, and the age and sex of the subjects. The statistical analysis produced means and standard deviations for each variable, coefficent correlations among each pair of variables, a multiple regression formula for all independent variables, and a step-wise regression with the three independent variables that generated the best regression formula.

Results

The 14 independent variables are listed in Table 11 in order of their correlation with the dependent variable, scores on the Suicide Probability Scale. A multiple regression analysis using all 14 independent variables produced a cumbersome formula highly predictive of SPS scores (r=.932). A step-wise regression resulted in the choice of three of these variables, making for a much simpler regression formula, yet still maintaining a high degree of predictability (r=.902).

The three variables chosen for this formula are 1/Crespi Inventory of Adolescent Well-Being scores 2/Family Environment Scale Active-Recreational Orientation scores, and 3/sex, with females coded as "1" and males as "2". These variables are included in the following equation, in which E is the estimate of the SPS score, X is the Crespi score, Y is the FES Active-Recreational Score, and Z is the sex code.

$$E = 200.851 + (-2.265)X + (-1.934)Y + (6.345)Z$$

Table 11

Independent Variables:

Correlations with Suicide Probability Scale Scores

Variable	r	p<
1. Crespi (Well-Being)	-.876	.001
2. FES Cohesion	-.743	.001
3. Nowicki-Strickland (Locus of Control)	.646	.001
4. FES Active-Recreational Orientation	-.556	.001
5. FES Independence	-.459	.001
6. FES Conflict	.389	.01
7. FES Moral-Religious Emphasis	-.371	.01
8. FES Organization	-.368	.01
9. FES Expressiveness	-.230	NS
10. Age	-.229	NS
11. FES Control	.207	NS
12. FES Intellectual-Cultural Orientation	-.195	NS
13. Sex*	.124	NS
14. FES Achievement Orientation	-.037	NS

*Females coded as "1", males as "2"

The statistics for this regression equation are presented in Table 12.

Table 12

Analysis of Variance

Source	df	SS	MSS	F	Sign./F
Regression	3	18371.949	6123.983	67.230	<.001
Error	46	4190.131	91.090	-	-
Total	49	22562.080	6215.073		
Multiple R		.902			
R Square		.814			
Adjusted R Square		.802			
Standard Error		9.544			

*Females coded as "1", males as "2

Discussion

The central finding of this study is that suicide risk among adolescents can be predicted with a high degree of accuracy using a simple 20 question inventory of psychological well-being, 9 questions about participation in social and recreational activities, and sex. By placing these variables in a regression formula, suicide risk scores are generated which can be used as an initial screening device. Those who score as a high suicide risk in this manner can then be targetted for a more substantial evaluation and intervention program.

The high correlation between the Crespi and SPS scores is consistent with a thorough reading of the literature. An abundance of substantial, experimental studies link adolescent self-destructive behavior to a variety of factors related to compromised psychological

functioning. Moreover, these are the same factors that are related to other adolescent problems. In short, there is no one factor predictive of adolescent suicidal behavior, nor can adolescent suicidal behavior be separated out from other adolescent problems in terms of its related variables. It therefore makes sense that the best predictor of adolescent suicide risk is an instrument such as the Crespi scale which measures the multi-faceted dimensions of adolescent well-being.

The second predictor variable in the step-wise regression is Active-Recreational Orientation on the Family Environment Scale, defined as "the extent of participation in social and recreational activities" (Moos & Moos, 1986, p.2). Sample items relate to involvements with friends, sports, and hobbies, especially outside the home. From this we can conclude that adolescent suicide risk increases as families become withdrawn from their social environments. Suicidal adolescents are unlikely to come from families with a high degree of involvement with people and activities outside the home. We can also conclude that the Crespi scale may not be adequately including this significant dimension of adolescent functioning and that it might be improved by the inclusion of several of the FES ARO items.

The third predictor variable is sex, with males demonstrating a higher risk than females. This is consistent with the literature which shows very significant sex differences. In 1982 the suicide rate for White males 15-19 years old was 15.5, compared to 3.4 for White females of the same age group. Non-White males in this age group are also much more likely than females to kill themselves (7.2 vs. 1.9). While

adolescent males are approximately four times more likely to kill themselves, studies (Tuckman & Connon, 1962; Morrison & Collier, 1969; White, 1974; Marks & Haller, 1977; Jacobziner, 1960; Rosenberg & Latimer, 1966; Garfinkel, Froese, & Hood, 1982; Teicher & Jacobs, 1966) show that adolescent females are between three and six times more likely to make non-lethal suicidal attempts. Consistent with the higher suicide rate of adolescent males is the finding that males tend to use more dangerous methods --- hanging, shooting, and jumping from high places. Females, on the other hand, are more likely to overdose on drugs or cut their wrists, behavior less likely to result in death.

Ideally, adolescent suicide risk would be accurately predicted from the results of one questionnaire measuring overall well-being and easily obtained background information. Our study included two "background" variables (age, sex), of which one (sex) was chosen for the regression formula. Unfortunately, other demographic variables (race, religion, SES, sibling position, family constitution) were not entered to determine if any, or all of them might significantly increase the prediction of the dependent variable. There are also other, more difficultly measured variables (depression, number of losses, substance abuse, family scapegoating) which have been implicated in adolescent suicide, but which were not included in this study. They would have served as a further check on the comprehensiveness of the Crespi scale.

While the results of this study are impressive, they are limited by the rather homogeneous nature of the sample. All of the subjects

were White Anglos from the same small community, attending the same high school. They are even a small subgroup of this school population, distinguished by the fact that both they and their parents agreed to their inclusion in a teen suicide study. However, with the exception of their higher SPS scores and lower Intellectual-Cultural Orientation scores, their mean scores do not differ significantly from those of larger, more heterogeneous national samples.

The limitations of this study suggest implications for further research. Other independent variables might be evaluated for their contributions to the prediction of adolescent suicide risk. More direct measures of the dependent variable might be used, such as a large psychiatric population with a significant number of eventual teen suicides. Future studies could more adequately sample the gamut of adolescence or conduct similar research with other age groups to determine if our findings pertain to other segments of the life-span. Finally, the replication of this study in non-school settings or communities with a different cultural mix would also be valuable in determining the generalizability of these results.

Appendix A

Letter to Parents

Department of Pupil Personnel Services
Millis Public School System
Plain Street
Millis, Massachusetts 02054

Dear Parent:

As you may know, suicide has become the second leading cause of death among teen-agers. Furthermore, a recent study estimates that from 1.5 to 2.5 million adolescent Americans have attempted suicide. The problem exists in all parts of our country, in small towns and large cities, and in every socio-economic class.

As a psychotherapist, I have worked with suicidal people over the past ten years and am now researching the problem through my doctoral program in Counseling Psychology at the University of Massachusetts. From my experience I have found that many teenagers are overwhelmed, discouraged, and pessimistic and consider suicide to be a way out of their distress. While this is difficult to face, an open study of the

problem is essential to help our young people through their adolescent years.

As part of my research and in an attempt to assist the suicide prevention effort at Millis High School, I will administer questionnaires to students on Monday, June 8 about suicidal behavior and other facets of adolescent life. If a student's responses indicate a significant suicide risk, the Department of Pupil Personnel Services will contact the parents and work with them to provide counseling services. The data from this research will be tabulated to test out some common beliefs about predictors of teen-age suicidal behavior. The findings will be presented to school staff to familiarize them with the problem, to clarify danger signals, and to propose useful action that might be taken.

Your child cannot participate in this study without your written consent. We therefore request that you complete the attached form and return it by Monday, June 1 in the enclosed envelope. You are free to withdraw this consent at any time and your child remains free to decline participation in the study at any time. I will hold an open meeting for parents on Thursday, May 28 at 7:30 p.m. in room 106 at the Middle-High School to answer questions about this study or adolescent suicide in general. Those not able to attend may call me at home (376-4110) in the evening or on week-ends with their questions.

Sincerely,

Theodore Stronach, Ed.D. (cand.)
30 Ticonderoga Lane
Millis, Mass. 02054
(376-4110)

Vahan Khachadoorian,
Superintendent of Schools

Suzanne Genest, Director
Pupil Personnel Services

Appendix B

Parental Consent Form

(Please return by June 1)

I grant permission for my child to participate in a research study at Millis High School on adolescent suicidal behavior. If my child's responses indicate a significant suicide risk, I understand that I will be notified by the Department of Pupil Personnel Services who will help to set up counseling services to deal with the problem. I also understand that I may withdraw my consent at any time and that my child is also free to withdraw his/her participation at any time.

Student's Name: _____

Parent's Signature: _____

Date: _____

I do not want my child to participate in the research study on adolescent suicidal behavior at Millis High School.

Student's Name: _____

Parent's Signature: _____

Date: _____

Appendix C

Student Information Sheet

Name: _____

Age: _____

Grade: _____

Would you like to talk to a professional counselor about suicidal thoughts or any other personal problem?

_____

Comments: _____

_____

_____

_____

_____

_____

_____

Appendix D

The Inventory of Adolescent Well-Being

Tony D. Crespi

HOW HAVE THINGS BEEN GOING FOR YOU?

INSTRUCTIONS: WE ARE INTERESTED IN LEARNING WHAT IS HAPPENING IN YOUR LIFE. WE'D APPRECIATE YOUR TAKING A FEW MINUTES TO COMPLETE THIS.

ANSWER CHOICES:	NOT AT All	SOMETIMES	OFTEN	ALMOST ALWAYS
	N	S	O	A

N S O A I HAVE BEEN WAKING UP FRESH AND RESTED.

N S O A I MISS SCHOOL AND/OR CLASSES FREQUENTLY.

N S O A I'VE BEEN HAVING FEELINGS OF EXTREME LONELINESS.

N S O A I'VE BEEN HOSPITALIZED FOR EMOTIONAL REASONS DURING THE LAST SIX MONTHS.

N S O A I'VE HAD SOME PROBLEMS WITH THE LAW DURING THE PAST SIX MONTHS.

N S O A I'M ACTIVE IN ATHLETICS.

N S O A I'M INVOLVED IN A SERIOUS RELATIONSHIP WITH A BOYFRIEND/GIRLFRIEND.

N S O A I HAVE SERIOUS ARGUMENTS WITH MY PARENTS/GUARDIANS.

N S O A I'M CURRENTLY IN TREATMENT FOR EMOTIONAL ISSUES.

N S O A I'M TAKING MEDICATION. What kind? _____

N S O A I CAN TALK TO MY PARENTS AND FEEL GOOD.

N S O A I CLEARLY KNOW WHAT I WANT IN LIFE.

N S O A I SOMETIMES WISH I WAS NEVER BORN.

N S O A I'VE RUN AWAY FROM HOME DURING THE PAST SIX MONTHS.

N S O A I HAVE A JOB AND WORK REGULARLY.

N S O A I'VE FELT SO SAD I'VE WONDERED IF ANYTHING WAS WORTHWHILE.

N S O A I FEEL TENSE AND ANXIOUS.

N S O A MY LIFE HAS IMPROVED SINCE SIX MONTHS AGO.

N S O A I'M IN FIRM CONTROL OF MY BEHAVIOR/THOUGHTS/FEELINGS.

N S O A MY LIFE'S O.K.

Appendix E

Nowicki-Strickland Locus of Control Scale For Children

Answer the following to the best of your ability by circling the "yes" or "no" at the end of each question.

1. Do you believe that most problems will solve themselves if you just don't fool with them? Yes No
2. Do you believe that you can stop yourself from catching a cold? Yes No
3. Are some kids just born lucky? Yes No
4. Most of the time do you feel that getting good grades means a great deal to you? Yes No
5. Are you often blamed for things that just aren't your fault? Yes No
6. Do you believe that if somebody studies hard enough he or she can pass any subject? Yes No
7. Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway? Yes No
8. Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do? Yes No
9. Do you feel that most of the time parents listen to what their children have to say? Yes No

10. Do you believe that wishing can make good things happen?

Yes No

11. When you get punished does it usually seem it's for no good reason at all?

Yes No

12. Most of the time do you find it hard to change a friend's (mind) opinion?

Yes No

13. Do you think that cheering more than luck helps a team to win?

Yes No

14. Do you feel that it's nearly impossible to change your parent's mind about anything?

Yes No

15. Do you believe that your parents should allow you to make most of your own decisions?

Yes No

16. Do you feel that when you do something wrong there's very little you can do to make it right?

Yes No

17. Do you believe that most kids are just born good at sports?

Yes No

18. Are most of the other kids your age stronger than you are?

Yes No

19. Do you feel that one of the best ways to handle most problems is just not to think about them?

Yes No

20. Do you feel that you have a lot of choice in deciding who your friends are?

Yes No

21. If you find a four leaf clover do you believe that it might bring you good luck?

Yes No

22. Do you often feel that whether you do your homework has much to do with what kind of grades you get? Yes No

23. Do you feel that when a kid your age decides to hit you, there's little you can do to stop him or her? Yes No

24. Have you ever had a good luck charm? Yes No

25. Do you believe that whether or not people like you depends on how you act? Yes No

26. Will your parents usually help you if you ask them to ? Yes No

27. Have you felt that when people were mean to you it was usually for no reason at all? Yes No

28. Most of the time, do you feel that you can change what might happen tomorrow by what you do today? Yes No

29. Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them? Yes No

30. Do you think that kids can get their own way if they just keep trying? Yes No

31. Most of the time do you find it useless to try to get your own way at home? Yes No

32. Do you feel that when good things happen they happen because of hard work? Yes No

33. Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters? Yes No

34. Do you feel that it's easy to get friends to do what you want them to?
Yes No

35. Do you usually feel that you have little to say about what you get to eat at home?
Yes No

36. Do you feel that when someone doesn't like you there's little you can do about it?
Yes No

37. Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you are?
Yes No

38. Are you the kind of person who believes that planning ahead makes things turn out better?
Yes No

39. Most of the time, do you feel that you have little to say about what your family decides to do?
Yes No

40. Do you think it's better to be smart than to be lucky?
Yes No

Appendix F

Dissertation Data

		SPS Scales					Family Environment Subscales											
Sx	Age	Tot	Hop	SI	NSE	Hos	C	Ex	Con	Ind	AO	ICO	ARO	MRE	Org	Ctl	NS	Cr
F	17	49	13	9	19	8	3	4	6	6	6	5	5	1	2	2	13	61
F	17	41	11	8	11	11	7	5	5	7	6	8	8	5	2	1	10	71
F	17	41	10	9	11	11	8	4	3	7	3	3	7	6	5	7	8	69
F	16	41	11	9	8	13	7	6	4	8	8	7	6	3	6	4	6	70
F	16	39	9	8	12	10	9	7	1	8	5	2	7	0	7	1	5	73
F	16	56	15	11	20	10	7	6	3	7	4	3	6	1	3	5	14	58
F	16	36	9	8	11	8	8	7	4	9	2	7	7	2	2	5	9	68
F	16	44	15	12	7	10	7	7	6	7	7	9	7	2	7	4	4	64
F	16	44	11	9	14	10	7	5	7	5	7	2	8	6	8	6	20	65
F	16	59	14	9	18	18	7	4	2	7	4	3	8	4	8	4	15	60
F	15	41	10	8	15	8	6	2	0	8	5	4	4	2	5	6	11	67
F	15	56	17	14	12	13	6	3	4	6	6	7	6	7	7	8	10	62
F	15	43	12	8	14	9	9	2	0	7	7	3	3	6	5	3	8	63
F	15	37	9	8	13	7	7	5	2	8	4	2	6	6	8	5	17	72
F	15	59	15	21	11	12	5	1	2	8	6	7	5	6	5	7	6	62
F	15	45	12	13	11	9	8	3	4	9	4	6	9	3	6	6	7	65
F	15	57	15	9	19	14	5	1	4	7	7	2	5	4	8	9	12	61
F	15	48	15	11	12	10	8	2	4	5	9	5	8	5	7	8	20	59

		SPS Scales					Family Environment Subscales											
Sx	Age	Tot	Hop	SI	NSE	Hos	C	Ex	Con	Ind	AO	ICO	ARO	MRE	Org	Ctl	NS	Cr
F	15	57	17	8	21	11	7	3	3	6	4	6	4	6	5	5	12	59
F	15	44	12	9	9	14	8	4	4	7	6	2	5	3	5	0	16	70
F	15	34	9	8	9	8	9	5	0	4	4	5	9	5	7	2	10	75
F	15	61	18	13	19	11	1	1	8	6	4	1	4	3	5	8	23	58
F	15	67	19	22	15	11	8	5	1	7	7	6	5	3	7	7	9	58
F	15	108	39	27	23	19	2	3	9	4	4	3	5	3	1	8	24	39
F	14	57	16	14	17	10	1	3	6	7	6	4	7	3	3	5	14	58
F	14	44	14	8	13	9	7	8	3	6	8	2	8	6	6	2	9	69
F	14	45	17	10	9	9	8	5	1	7	5	2	6	6	5	3	10	64
F	14	70	18	18	18	16	6	7	6	7	9	2	7	4	6	4	8	59
F	14	96	30	30	19	17	1	5	8	2	4	3	4	4	2	1	20	46
F	14	75	21	19	13	22	6	4	1	8	2	4	3	1	2	2	26	60
M	17	97	32	24	19	22	2	4	5	6	6	3	6	2	3	6	13	52
M	17	43	10	8	11	14	9	5	3	7	6	3	8	7	4	2	9	69
M	16	81	26	22	16	17	1	4	7	7	5	2	4	1	5	3	19	52
M	16	40	13	8	10	9	7	3	1	7	7	5	8	5	9	7	9	67
M	16	44	9	8	13	14	7	4	2	7	5	5	6	4	5	5	5	71
M	16	34	8	8	11	7	9	7	4	7	6	2	5	2	8	6	6	75
M	16	44	10	9	14	11	4	4	2	5	8	4	7	4	4	5	16	68

		SPS Scales					Family Environment Subscales											
Sx	Age	Tot	Hop	SI	NSE	Hos	C	Ex	Con	Ind	AO	ICO	ARO	MRE	Org	Ctl	NS	Cr
M	15	103	31	33	19	20	3	3	0	4	7	5	2	0	6	5	20	54
M	15	84	27	26	15	16	1	4	8	6	6	3	7	3	5	6	18	57
M	15	79	22	17	19	21	1	2	6	5	7	6	7	5	1	8	19	57
M	15	40	10	8	9	13	8	4	1	5	4	8	7	8	4	3	10	72
M	15	39	12	8	12	7	6	3	4	8	7	4	6	4	5	8	-	71
M	15	36	8	8	13	7	7	5	3	6	4	5	7	5	6	4	12	68
M	15	35	8	8	9	10	5	3	2	8	4	3	8	3	8	6	10	69
M	15	43	17	9	7	10	9	3	2	6	6	5	8	6	8	6	15	70
M	14	126	34	35	27	30	1	3	4	5	5	3	0	2	5	8	28	50
M	14	46	19	10	9	8	7	1	4	4	6	5	7	5	8	7	18	66
M	14	67	22	11	18	16	5	2	6	4	6	1	6	3	5	4	15	56
M	14	39	12	9	10	8	6	5	5	6	7	5	5	7	4	4	9	60
M	14	50	16	9	13	12	6	6	4	7	8	5	3	3	4	6	6	65

Appendix G

Summary of Means and Standard Deviations

Family Environment Scale

N	Sex	Age	C	Ex	Con	Ind	AO	ICO	ARO	MRE	Org	Ctl
3	F	17	6.Ø	4.3	4.7	6.7	5.Ø	5.3	6.7	4.Ø	3.Ø	3.3
7	F	16	7.4	4.6	3.9	7.3	5.3	4.7	7.Ø	2.6	5.9	4.1
14	F	15	6.4	2.9	3.2	6.6	5.5	4.2	5.6	4.4	5.8	5.9
6	F	14	4.8	5.3	4.2	6.2	5.7	2.8	5.8	4.Ø	4.Ø	2.8
3Ø	F	14-17	6.3	3.9	3.7	6.7	5.4	4.1	6.1	3.9	5.2	4.6
2	M	17	5.5	4.5	4.Ø	6.5	6.Ø	3.Ø	7.Ø	4.5	3.5	4.Ø
5	M	16	5.6	4.4	3.2	6.6	6.2	3.6	6.Ø	3.2	6.2	5.2
8	M	15	5.Ø	3.4	3.3	6.Ø	5.6	4.9	6.5	4.3	5.4	5.8
5	M	14	5.Ø	3.4	4.6	5.2	6.4	3.8	4.2	4.Ø	5.2	5.8
2Ø	M	14-17	5.2	4.1	3.7	6.Ø	6.Ø	4.1	5.9	4.Ø	5.4	5.5
5Ø	F/M	15.2	5.8	4.Ø	3.7	6.4	5.7	4.1	6.Ø	3.9	5.2	4.9
SD		.9	2.6	1.7	2.3	1.4	1.6	2.Ø	1.9	2.Ø	2.1	2.3

Appendix H

Summary of Means and Standard Deviations

Suicide Probability Scale, Nowicki-Strickland Scale, Crespi Scale

Suicide Probability Scale

N	Sex	Age	Tot	Hop	SI	NSE	Hos	NS	Crespi
3	F	17	43.7	11.3	8.7	13.7	10.0	10.3	67.0
7	F	16	45.6	12.0	9.4	12.9	11.3	10.4	65.4
14	F	15	54.1	15.6	12.8	14.5	11.1	13.2	62.1
6	F	14	64.5	19.3	16.5	14.8	13.8	14.5	59.3
30	F	14-17	53.2	15.1	12.3	14.1	11.6	12.5	62.8
2	M	17	70.0	21.0	16.0	15.0	18.0	11.0	60.5
5	M	16	48.6	13.2	11.0	12.8	11.6	11.0	66.6
8	M	15	57.4	16.9	14.6	12.9	13.0	14.9	64.8
5	M	14	65.6	20.6	14.8	15.4	14.8	15.2	59.4
20	M	14-17	58.5	17.3	13.9	13.7	13.6	13.6	63.5
50	F/M	15.2	55.3	16.0	13.0	13.9	12.4	12.9	63.1
SD		.9	21.5	7.4	7.3	4.5	4.8	5.8	7.6

Appendix I

Correlations Between Independent Variables

Age	-.018								
FES Coh.	-.203	.171							
FES Ex.	-.137	.187	.338						
FES Confl.	-.011	-.014	-.603	-.002					
FES Ind.	-.229	.258	.371	.204	-.302				
FES Ach.	.170	-.085	-.008	.033	.099	-.130			
FES ICO	-.017	.154	.193	.016	-.169	.095	.047		
FES ARO	-.057	.301	.405	.205	-.011	.116	.057	.162	
FES MRE	.021	-.125	.349	-.142	-.132	-.159	.128	.179	.365
FES Org.	.044	-.040	.448	-.025	-.349	.131	.234	-.124	.269
FES Contr.	.187	-.093	-.249	-.517	.144	-.005	.143	.053	-.087
CNSIE	.082	-.275	-.589	-.403	.348	-.505	-.190	-.343	-.363
Crespi	.040	.260	.731	.295	-.534	.455	.020	.187	.472
	Sex	Age	FES Coh.	FES Ex.	FES Confl.	FES Ind.	FES Ach.	FES ICO	FES ARO

FES Org	.172			
FES Contr.	.063	.227		
CNSIE	-.196	-.238	.187	
Crespi	.284	.416	-.239	-.594
	FES MRE	FES Org.	FES Contr.	CNSIE

Appendix J

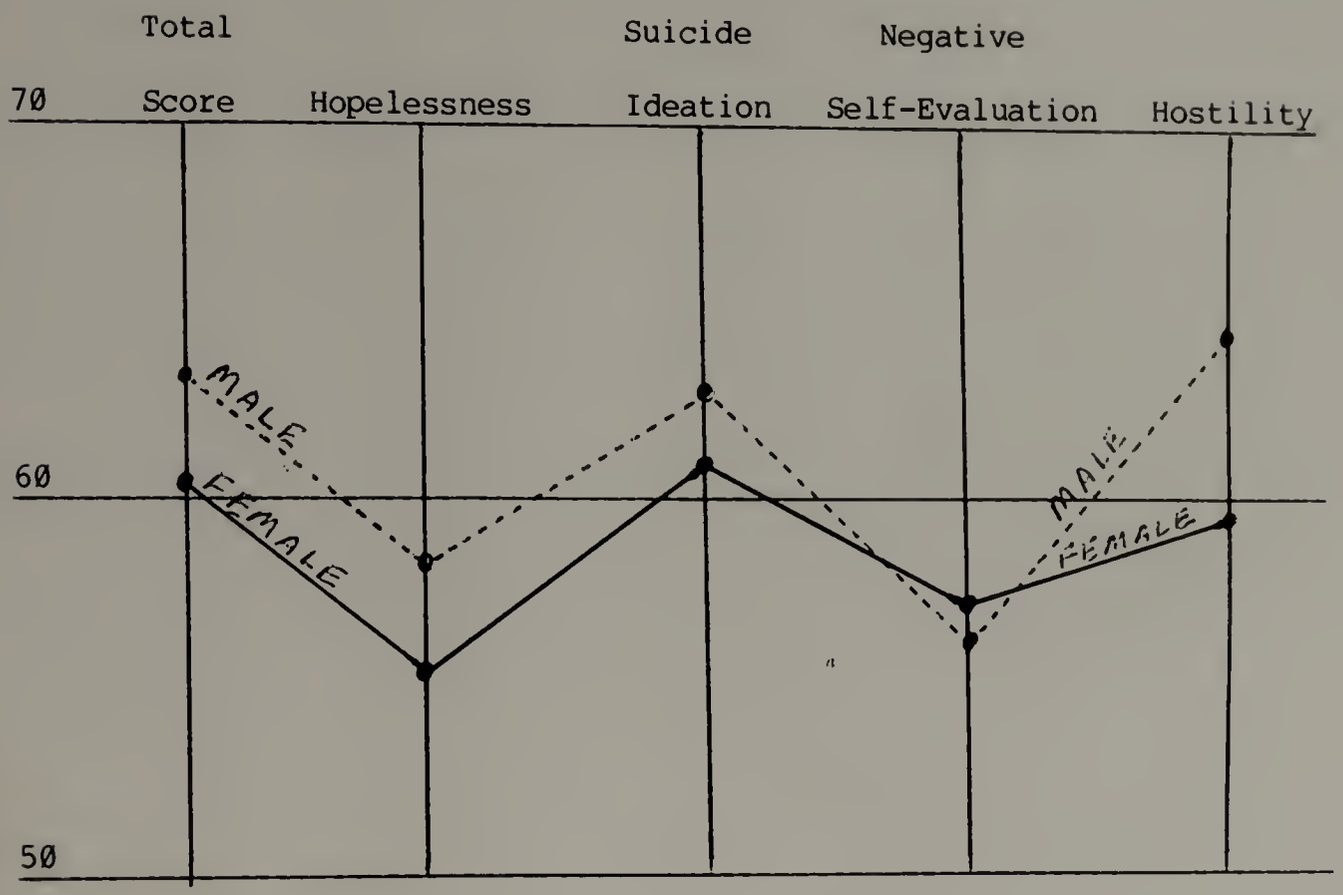
Correlations Between SPS Subscales and Total SPS Scores

Hopelessness	.952			
Suicidal Ideation	.936	.887		
Hostility	.868	.760	.754	
Negative Self-Image	.766	.652	.583	.603
	SPS	Hoplsns	SI	Hos

Appendix K

Suicide Probability Scale T-Scores

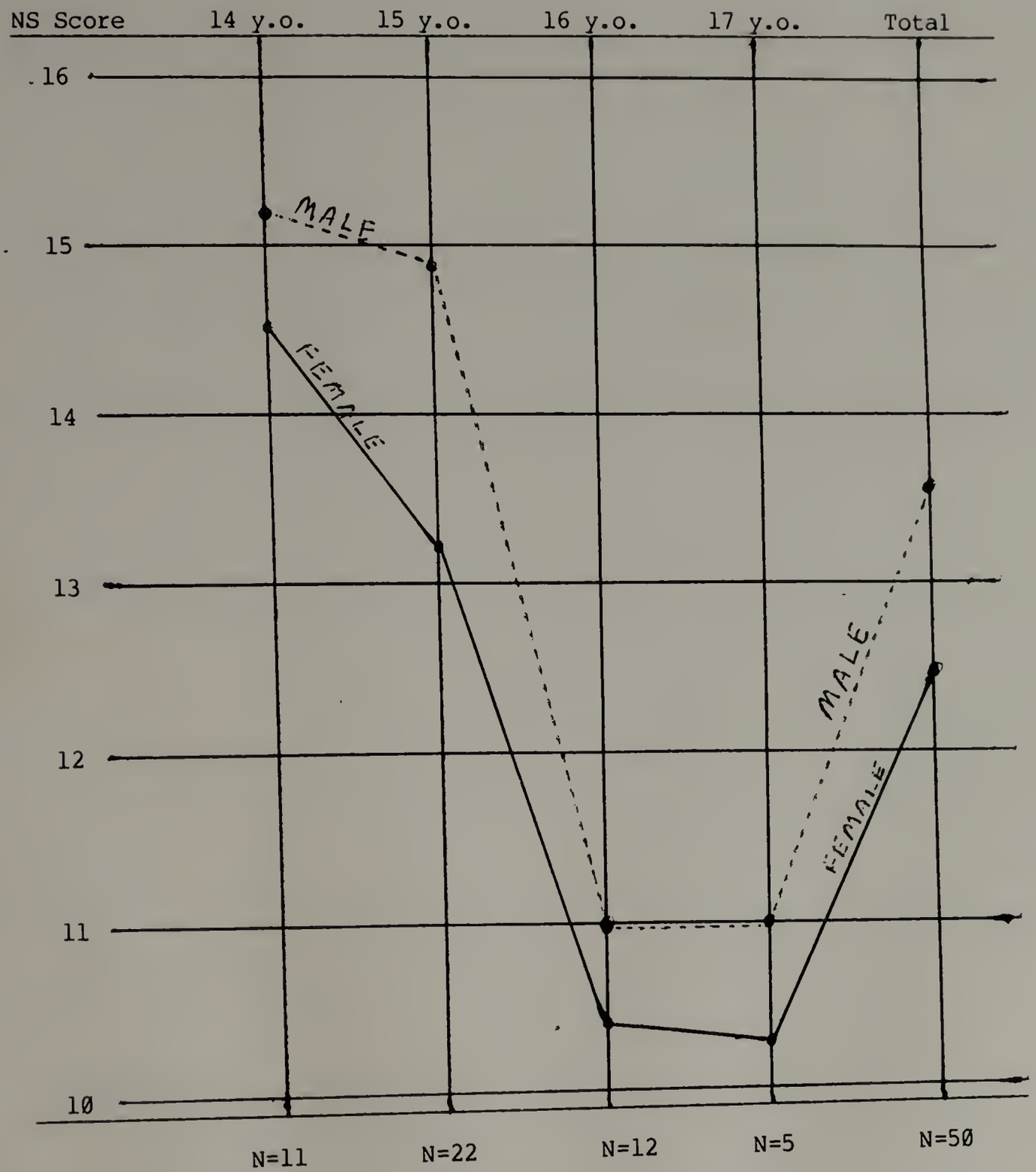
Female Means vs. Male Means



Appendix L

Nowicki-Strickland Scale

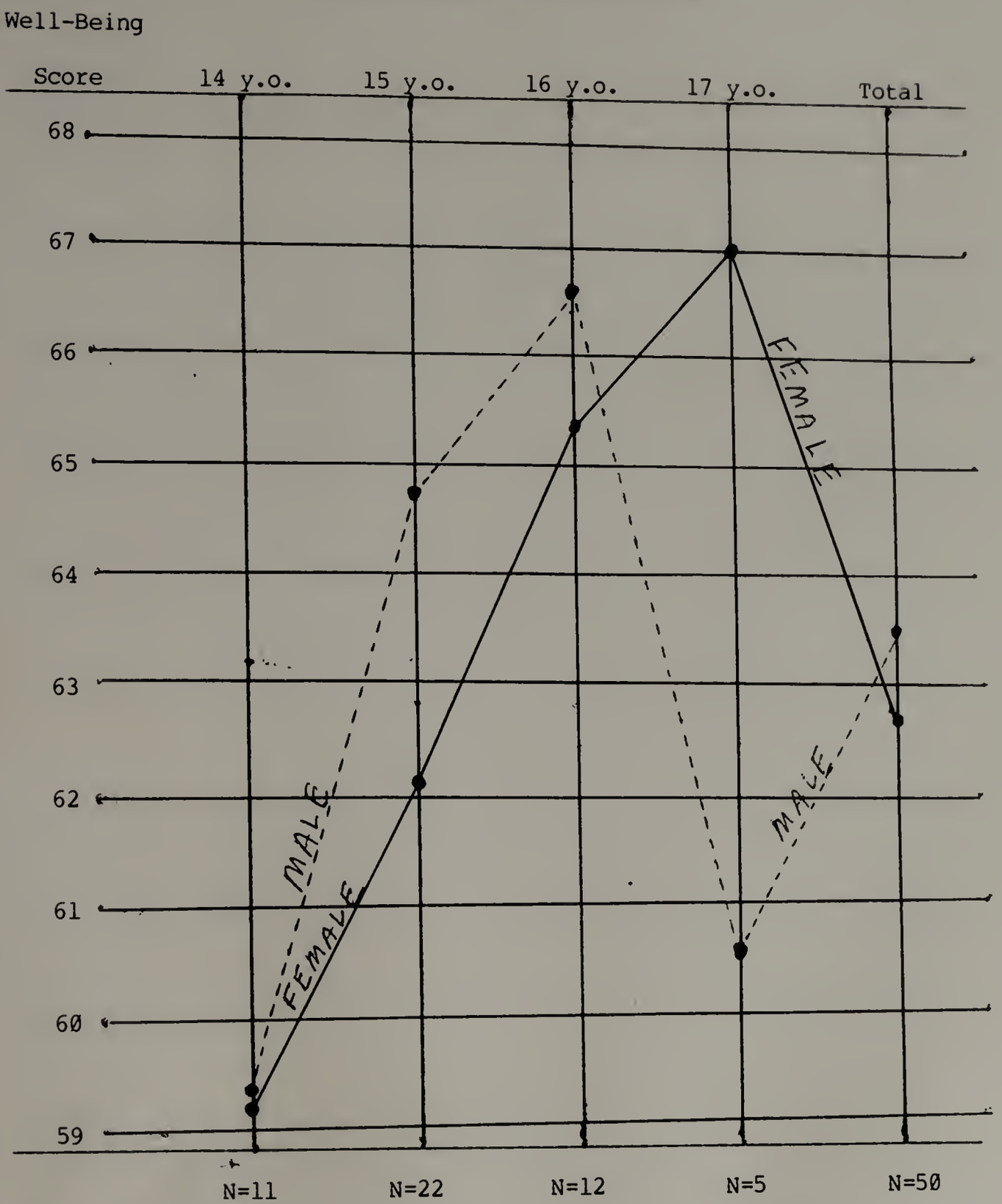
Female Means vs. Male Means



Appendix M

The Inventory of Adolescent Well-Being

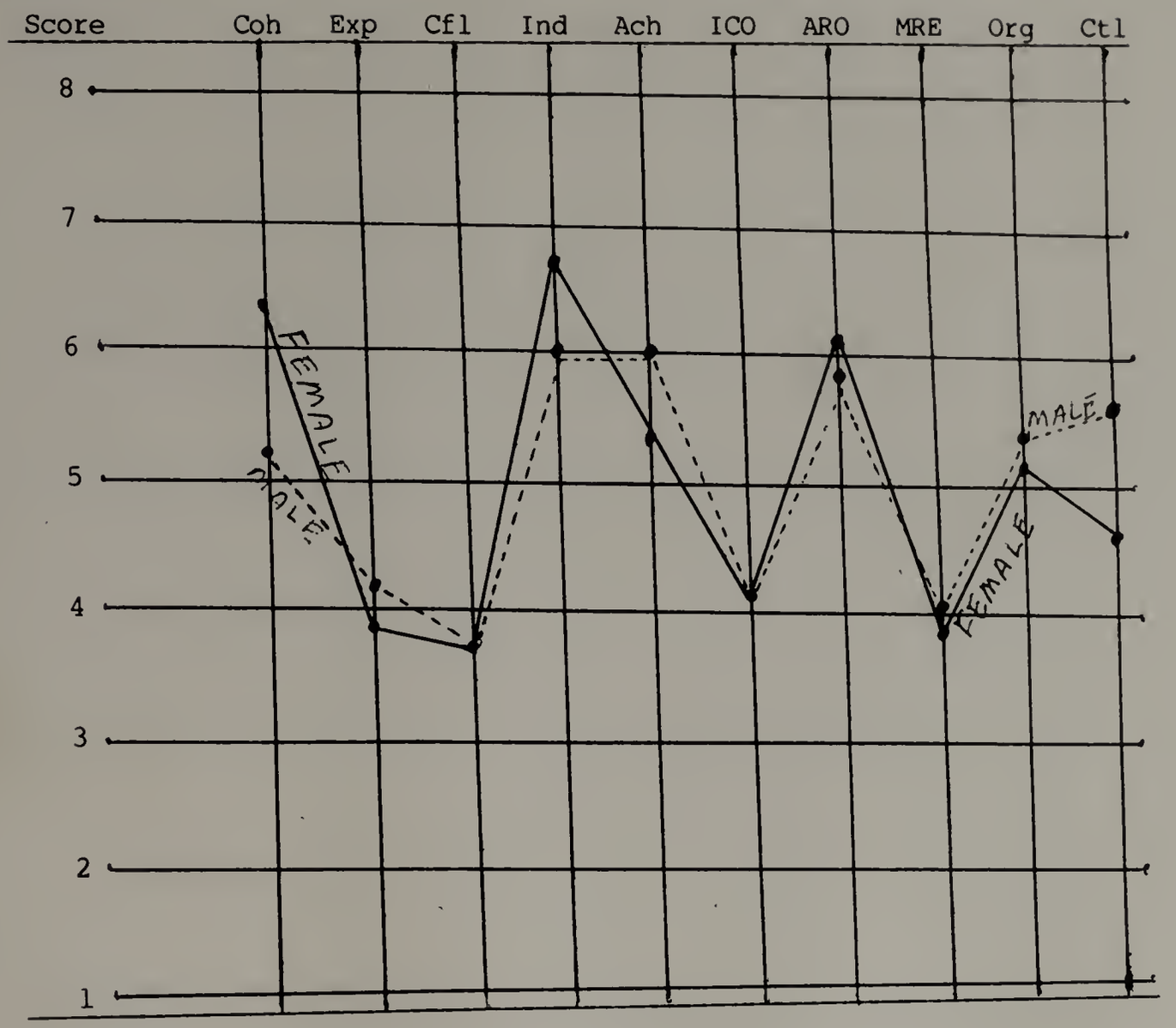
Female Means vs. Male Means



Appendix N

Family Environment Scale

Female Means vs. Male Means



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